

Table
Rating Table for Irregular Channel

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft ²)	Wetted Perimeter (ft)	Top Width (ft)
0.008400	89.28	4.83	18.5	50.12	50.00
0.008500	89.81	4.86	18.5	50.12	50.00
0.008600	90.34	4.89	18.5	50.12	50.00
0.008700	90.87	4.92	18.5	50.12	50.00
0.008800	91.39	4.94	18.5	50.12	50.00
0.008900	91.90	4.97	18.5	50.12	50.00
0.009000	92.42	5.00	18.5	50.12	50.00
0.009100	92.93	5.03	18.5	50.12	50.00
0.009200	93.44	5.06	18.5	50.12	50.00
0.009300	93.95	5.08	18.5	50.12	50.00
0.009400	94.45	5.11	18.5	50.12	50.00
0.009500	94.95	5.14	18.5	50.12	50.00
0.009600	95.45	5.16	18.5	50.12	50.00
0.009700	95.95	5.19	18.5	50.12	50.00
0.009800	96.44	5.22	18.5	50.12	50.00
0.009900	96.93	5.24	18.5	50.12	50.00
0.010000	97.42	5.27	18.5	50.12	50.00
0.010100	97.90	5.30	18.5	50.12	50.00
0.010200	98.39	5.32	18.5	50.12	50.00
0.010300	98.87	5.35	18.5	50.12	50.00
0.010400	99.35	5.38	18.5	50.12	50.00
0.010500	99.82	5.40	18.5	50.12	50.00
0.010600	100.30	5.43	18.5	50.12	50.00
0.010700	100.77	5.45	18.5	50.12	50.00
0.010800	101.24	5.48	18.5	50.12	50.00
0.010900	101.71	5.50	18.5	50.12	50.00
0.011000	102.17	5.53	18.5	50.12	50.00
0.011100	102.64	5.55	18.5	50.12	50.00
0.011200	103.10	5.58	18.5	50.12	50.00
0.011300	103.56	5.60	18.5	50.12	50.00
0.011400	104.01	5.63	18.5	50.12	50.00
0.011500	104.47	5.65	18.5	50.12	50.00
0.011600	104.92	5.68	18.5	50.12	50.00
0.011700	105.37	5.70	18.5	50.12	50.00
0.011800	105.82	5.73	18.5	50.12	50.00
0.011900	106.27	5.75	18.5	50.12	50.00
0.012000	106.72	5.77	18.5	50.12	50.00
0.012100	107.16	5.80	18.5	50.12	50.00
0.012200	107.60	5.82	18.5	50.12	50.00
0.012300	108.04	5.85	18.5	50.12	50.00
0.012400	108.48	5.87	18.5	50.12	50.00
0.012500	108.92	5.89	18.5	50.12	50.00
0.012600	109.35	5.92	18.5	50.12	50.00
0.012700	109.78	5.94	18.5	50.12	50.00
0.012800	110.22	5.96	18.5	50.12	50.00
0.012900	110.65	5.99	18.5	50.12	50.00
0.013000	111.07	6.01	18.5	50.12	50.00
0.013100	111.50	6.03	18.5	50.12	50.00
0.013200	111.92	6.06	18.5	50.12	50.00
0.013300	112.35	6.08	18.5	50.12	50.00
0.013400	112.77	6.10	18.5	50.12	50.00
0.013500	113.19	6.12	18.5	50.12	50.00
0.013600	113.61	6.15	18.5	50.12	50.00

Table
Rating Table for Irregular Channel

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
0.013700	114.02	6.17	18.5	50.12	50.00
0.013800	114.44	6.19	18.5	50.12	50.00
0.013900	114.85	6.21	18.5	50.12	50.00
0.014000	115.27	6.24	18.5	50.12	50.00
0.014100	115.68	6.26	18.5	50.12	50.00
0.014200	116.09	6.28	18.5	50.12	50.00
0.014300	116.49	6.30	18.5	50.12	50.00
0.014400	116.90	6.33	18.5	50.12	50.00
0.014500	117.31	6.35	18.5	50.12	50.00
0.014600	117.71	6.37	18.5	50.12	50.00
0.014700	118.11	6.39	18.5	50.12	50.00
0.014800	118.51	6.41	18.5	50.12	50.00
0.014900	118.91	6.43	18.5	50.12	50.00
0.015000	119.31	6.46	18.5	50.12	50.00
0.015100	119.71	6.48	18.5	50.12	50.00
0.015200	120.10	6.50	18.5	50.12	50.00
0.015300	120.50	6.52	18.5	50.12	50.00
0.015400	120.89	6.54	18.5	50.12	50.00
0.015500	121.28	6.56	18.5	50.12	50.00
0.015600	121.67	6.58	18.5	50.12	50.00
0.015700	122.06	6.60	18.5	50.12	50.00
0.015800	122.45	6.63	18.5	50.12	50.00
0.015900	122.84	6.65	18.5	50.12	50.00
0.016000	123.22	6.67	18.5	50.12	50.00
0.016100	123.61	6.69	18.5	50.12	50.00
0.016200	123.99	6.71	18.5	50.12	50.00
0.016300	124.37	6.73	18.5	50.12	50.00
0.016400	124.76	6.75	18.5	50.12	50.00
0.016500	125.14	6.77	18.5	50.12	50.00
0.016600	125.51	6.79	18.5	50.12	50.00
0.016700	125.89	6.81	18.5	50.12	50.00
0.016800	126.27	6.83	18.5	50.12	50.00
0.016900	126.64	6.85	18.5	50.12	50.00
0.017000	127.02	6.87	18.5	50.12	50.00
0.017100	127.39	6.89	18.5	50.12	50.00
0.017200	127.76	6.91	18.5	50.12	50.00
0.017300	128.13	6.93	18.5	50.12	50.00
0.017400	128.50	6.95	18.5	50.12	50.00
0.017500	128.87	6.97	18.5	50.12	50.00
0.017600	129.24	6.99	18.5	50.12	50.00
0.017700	129.61	7.01	18.5	50.12	50.00
0.017800	129.97	7.03	18.5	50.12	50.00
0.017900	130.34	7.05	18.5	50.12	50.00
0.018000	130.70	7.07	18.5	50.12	50.00
0.018100	131.06	7.09	18.5	50.12	50.00
0.018200	131.42	7.11	18.5	50.12	50.00
0.018300	131.78	7.13	18.5	50.12	50.00
0.018400	132.14	7.15	18.5	50.12	50.00
0.018500	132.50	7.17	18.5	50.12	50.00
0.018600	132.86	7.19	18.5	50.12	50.00
0.018700	133.22	7.21	18.5	50.12	50.00
0.018800	133.57	7.23	18.5	50.12	50.00
0.018900	133.93	7.25	18.5	50.12	50.00

Table
Rating Table for Irregular Channel

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft ²)	Wetted Perimeter (ft)	Top Width (ft)
0.019000	134.28	7.27	18.5	50.12	50.00
0.019100	134.63	7.28	18.5	50.12	50.00
0.019200	134.99	7.30	18.5	50.12	50.00
0.019300	135.34	7.32	18.5	50.12	50.00
0.019400	135.69	7.34	18.5	50.12	50.00
0.019500	136.04	7.36	18.5	50.12	50.00
0.019600	136.38	7.38	18.5	50.12	50.00
0.019700	136.73	7.40	18.5	50.12	50.00
0.019800	137.08	7.42	18.5	50.12	50.00
0.019900	137.42	7.44	18.5	50.12	50.00
0.020000	137.77	7.45	18.5	50.12	50.00

Cross Section Cross Section for Irregular Channel

Project Description	
Worksheet	Collector Str 60P
Flow Element	Irregular Channel
Method	Manning's Formu
Solve For	Discharge
Section Data	
Mannings Coefficient	0.014
Channel Slope	0.005000 ft/ft
Water Surface Elev.	100.67 ft
Elevation Range	100.00 to 100.67
Discharge	73.88 cfs

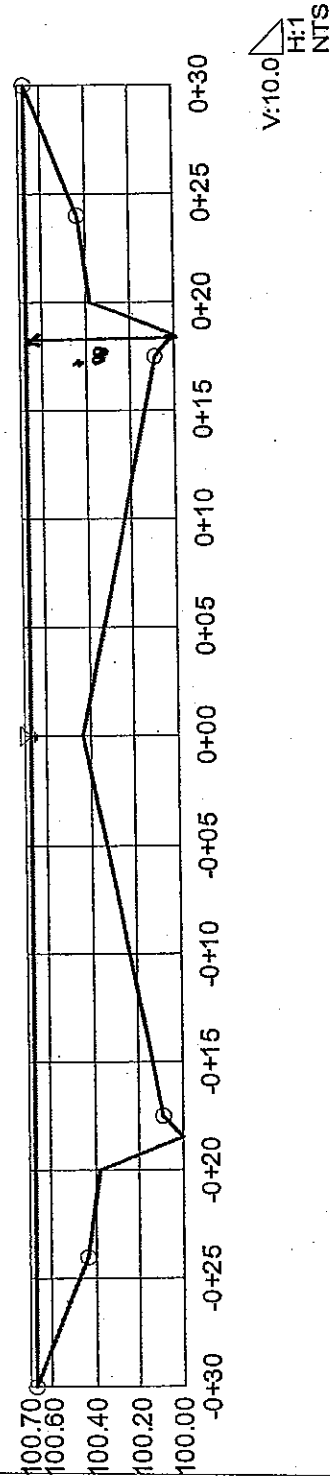


Table
Rating Table for Irregular Channel

Project Description	
Worksheet	Collector Str 60°F
Flow Element	Irregular Channel
Method	Manning's Formu
Solve For	Discharge

Input Data
Water Surface Elev. 00.67 ft

Options
Current Roughness Method ved Lotter's Method
Open Channel Weighting ved Lotter's Method
Closed Channel Weighting Horton's Method

Attribute	Minimum	Maximum	Increment
Channel Slope (ft/ft)	0.005000	0.020000	0.000100

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
0.005000	73.88	3.58	20.7	60.12	60.00
0.005100	74.61	3.61	20.7	60.12	60.00
0.005200	75.34	3.65	20.7	60.12	60.00
0.005300	76.06	3.68	20.7	60.12	60.00
0.005400	76.78	3.72	20.7	60.12	60.00
0.005500	77.49	3.75	20.7	60.12	60.00
0.005600	78.19	3.79	20.7	60.12	60.00
0.005700	78.88	3.82	20.7	60.12	60.00
0.005800	79.57	3.85	20.7	60.12	60.00
0.005900	80.25	3.89	20.7	60.12	60.00
0.006000	80.93	3.92	20.7	60.12	60.00
0.006100	81.60	3.95	20.7	60.12	60.00
0.006200	82.27	3.98	20.7	60.12	60.00
0.006300	82.93	4.02	20.7	60.12	60.00
0.006400	83.59	4.05	20.7	60.12	60.00
0.006500	84.24	4.08	20.7	60.12	60.00
0.006600	84.88	4.11	20.7	60.12	60.00
0.006700	85.52	4.14	20.7	60.12	60.00
0.006800	86.16	4.17	20.7	60.12	60.00
0.006900	86.79	4.20	20.7	60.12	60.00
0.007000	87.42	4.23	20.7	60.12	60.00
0.007100	88.04	4.26	20.7	60.12	60.00
0.007200	88.66	4.29	20.7	60.12	60.00
0.007300	89.27	4.32	20.7	60.12	60.00
0.007400	89.88	4.35	20.7	60.12	60.00
0.007500	90.48	4.38	20.7	60.12	60.00
0.007600	91.08	4.41	20.7	60.12	60.00
0.007700	91.68	4.44	20.7	60.12	60.00
0.007800	92.28	4.47	20.7	60.12	60.00
0.007900	92.87	4.50	20.7	60.12	60.00
0.008000	93.45	4.52	20.7	60.12	60.00
0.008100	94.03	4.55	20.7	60.12	60.00
0.008200	94.61	4.58	20.7	60.12	60.00
0.008300	95.19	4.61	20.7	60.12	60.00

Table
Rating Table for Irregular Channel

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft ²)	Wetted Perimeter (ft)	Top Width (ft)
0.008400	95.76	4.64	20.7	60.12	60.00
0.008500	96.33	4.66	20.7	60.12	60.00
0.008600	96.89	4.69	20.7	60.12	60.00
0.008700	97.45	4.72	20.7	60.12	60.00
0.008800	98.01	4.75	20.7	60.12	60.00
0.008900	98.57	4.77	20.7	60.12	60.00
0.009000	99.12	4.80	20.7	60.12	60.00
0.009100	99.67	4.83	20.7	60.12	60.00
0.009200	100.21	4.85	20.7	60.12	60.00
0.009300	100.76	4.88	20.7	60.12	60.00
0.009400	101.30	4.90	20.7	60.12	60.00
0.009500	101.84	4.93	20.7	60.12	60.00
0.009600	102.37	4.96	20.7	60.12	60.00
0.009700	102.90	4.98	20.7	60.12	60.00
0.009800	103.43	5.01	20.7	60.12	60.00
0.009900	103.96	5.03	20.7	60.12	60.00
0.010000	104.48	5.06	20.7	60.12	60.00
0.010100	105.00	5.08	20.7	60.12	60.00
0.010200	105.52	5.11	20.7	60.12	60.00
0.010300	106.04	5.13	20.7	60.12	60.00
0.010400	106.55	5.16	20.7	60.12	60.00
0.010500	107.06	5.18	20.7	60.12	60.00
0.010600	107.57	5.21	20.7	60.12	60.00
0.010700	108.08	5.23	20.7	60.12	60.00
0.010800	108.58	5.26	20.7	60.12	60.00
0.010900	109.08	5.28	20.7	60.12	60.00
0.011000	109.58	5.31	20.7	60.12	60.00
0.011100	110.08	5.33	20.7	60.12	60.00
0.011200	110.57	5.35	20.7	60.12	60.00
0.011300	111.07	5.38	20.7	60.12	60.00
0.011400	111.56	5.40	20.7	60.12	60.00
0.011500	112.04	5.42	20.7	60.12	60.00
0.011600	112.53	5.45	20.7	60.12	60.00
0.011700	113.01	5.47	20.7	60.12	60.00
0.011800	113.50	5.49	20.7	60.12	60.00
0.011900	113.98	5.52	20.7	60.12	60.00
0.012000	114.45	5.54	20.7	60.12	60.00
0.012100	114.93	5.56	20.7	60.12	60.00
0.012200	115.40	5.59	20.7	60.12	60.00
0.012300	115.88	5.61	20.7	60.12	60.00
0.012400	116.35	5.63	20.7	60.12	60.00
0.012500	116.81	5.66	20.7	60.12	60.00
0.012600	117.28	5.68	20.7	60.12	60.00
0.012700	117.74	5.70	20.7	60.12	60.00
0.012800	118.21	5.72	20.7	60.12	60.00
0.012900	118.67	5.75	20.7	60.12	60.00
0.013000	119.13	5.77	20.7	60.12	60.00
0.013100	119.58	5.79	20.7	60.12	60.00
0.013200	120.04	5.81	20.7	60.12	60.00
0.013300	120.49	5.83	20.7	60.12	60.00
0.013400	120.95	5.86	20.7	60.12	60.00
0.013500	121.40	5.88	20.7	60.12	60.00
0.013600	121.85	5.90	20.7	60.12	60.00

Table
Rating Table for Irregular Channel

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
0.013700	122.29	5.92	20.7	60.12	60.00
0.013800	122.74	5.94	20.7	60.12	60.00
0.013900	123.18	5.96	20.7	60.12	60.00
0.014000	123.62	5.99	20.7	60.12	60.00
0.014100	124.06	6.01	20.7	60.12	60.00
0.014200	124.50	6.03	20.7	60.12	60.00
0.014300	124.94	6.05	20.7	60.12	60.00
0.014400	125.38	6.07	20.7	60.12	60.00
0.014500	125.81	6.09	20.7	60.12	60.00
0.014600	126.25	6.11	20.7	60.12	60.00
0.014700	126.68	6.13	20.7	60.12	60.00
0.014800	127.11	6.15	20.7	60.12	60.00
0.014900	127.54	6.17	20.7	60.12	60.00
0.015000	127.96	6.20	20.7	60.12	60.00
0.015100	128.39	6.22	20.7	60.12	60.00
0.015200	128.81	6.24	20.7	60.12	60.00
0.015300	129.24	6.26	20.7	60.12	60.00
0.015400	129.66	6.28	20.7	60.12	60.00
0.015500	130.08	6.30	20.7	60.12	60.00
0.015600	130.50	6.32	20.7	60.12	60.00
0.015700	130.91	6.34	20.7	60.12	60.00
0.015800	131.33	6.36	20.7	60.12	60.00
0.015900	131.75	6.38	20.7	60.12	60.00
0.016000	132.16	6.40	20.7	60.12	60.00
0.016100	132.57	6.42	20.7	60.12	60.00
0.016200	132.98	6.44	20.7	60.12	60.00
0.016300	133.39	6.46	20.7	60.12	60.00
0.016400	133.80	6.48	20.7	60.12	60.00
0.016500	134.21	6.50	20.7	60.12	60.00
0.016600	134.61	6.52	20.7	60.12	60.00
0.016700	135.02	6.54	20.7	60.12	60.00
0.016800	135.42	6.56	20.7	60.12	60.00
0.016900	135.83	6.58	20.7	60.12	60.00
0.017000	136.23	6.60	20.7	60.12	60.00
0.017100	136.63	6.61	20.7	60.12	60.00
0.017200	137.03	6.63	20.7	60.12	60.00
0.017300	137.42	6.65	20.7	60.12	60.00
0.017400	137.82	6.67	20.7	60.12	60.00
0.017500	138.22	6.69	20.7	60.12	60.00
0.017600	138.61	6.71	20.7	60.12	60.00
0.017700	139.00	6.73	20.7	60.12	60.00
0.017800	139.40	6.75	20.7	60.12	60.00
0.017900	139.79	6.77	20.7	60.12	60.00
0.018000	140.18	6.79	20.7	60.12	60.00
0.018100	140.57	6.81	20.7	60.12	60.00
0.018200	140.95	6.82	20.7	60.12	60.00
0.018300	141.34	6.84	20.7	60.12	60.00
0.018400	141.73	6.86	20.7	60.12	60.00
0.018500	142.11	6.88	20.7	60.12	60.00
0.018600	142.49	6.90	20.7	60.12	60.00
0.018700	142.88	6.92	20.7	60.12	60.00
0.018800	143.26	6.94	20.7	60.12	60.00
0.018900	143.64	6.95	20.7	60.12	60.00

Table
Rating Table for Irregular Channel

Channel Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
0.019000	144.02	6.97	20.7	60.12	60.00
0.019100	144.40	6.99	20.7	60.12	60.00
0.019200	144.77	7.01	20.7	60.12	60.00
0.019300	145.15	7.03	20.7	60.12	60.00
0.019400	145.53	7.05	20.7	60.12	60.00
0.019500	145.90	7.06	20.7	60.12	60.00
0.019600	146.27	7.08	20.7	60.12	60.00
0.019700	146.65	7.10	20.7	60.12	60.00
0.019800	147.02	7.12	20.7	60.12	60.00
0.019900	147.39	7.14	20.7	60.12	60.00
0.020000	147.76	7.15	20.7	60.12	60.00

Worksheet

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Channel J-B (rev 20060521)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.025
Channel Slope	0.010000 ft/ft
Left Side Slope	3.00 H : V
Right Side Slope	3.00 H : V
Bottom Width	25.00 ft
Discharge	778.00 cfs

Results	
Depth	2.52 ft
Flow Area	82.2 ft ²
Wetted Perimeter	40.97 ft
Top Width	40.15 ft
Critical Depth	2.77 ft
Critical Slope	0.007188 ft/ft
Velocity	9.46 ft/s
Velocity Head	1.39 ft
Specific Energy	3.92 ft
Froude Number	1.17
Flow Type	Supercritical

Worksheet

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Channel J-A (20060521)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.025
Channel Slope	0.010000 ft/ft
Left Side Slope	4.00 H : V
Right Side Slope	4.00 H : V
Bottom Width	4.00 ft
Discharge	271.00 cfs

Results	
Depth	2.53 ft
Flow Area	35.8 ft ²
Wetted Perimeter	24.88 ft
Top Width	24.26 ft
Critical Depth	2.65 ft
Critical Slope	0.008172 ft/ft
Velocity	7.57 ft/s
Velocity Head	0.89 ft
Specific Energy	3.42 ft
Froude Number	1.10
Flow Type	Supercritical

Worksheet

Worksheet for Triangular Channel

Project Description	
Worksheet	Channel OS_3 (rev20060521)
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.025
Channel Slope	0.010000 ft/ft
Left Side Slope	4.00 H : V
Right Side Slope	4.00 H : V
Discharge	149.00 cfs

Results	
Depth	2.38 ft
Flow Area	22.7 ft ²
Wetted Perimeter	19.67 ft
Top Width	19.08 ft
Critical Depth	2.44 ft
Critical Slope	0.008872 ft/ft
Velocity	6.55 ft/s
Velocity Head	0.67 ft
Specific Energy	3.05 ft
Froude Number	1.06
Flow Type	Supercritical

Worksheet**Worksheet for Trapezoidal Channel**

Project Description	
Worksheet	Channel OS-8 (20060521)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.025
Channel Slope	0.010000 ft/ft
Left Side Slope	4.00 H : V
Right Side Slope	4.00 H : V
Bottom Width	5.00 ft
Discharge	409.00 cfs

Results	
Depth	2.92 ft
Flow Area	48.8 ft ²
Wetted Perimeter	29.10 ft
Top Width	28.38 ft
Critical Depth	3.09 ft
Critical Slope	0.007734 ft/ft
Velocity	8.39 ft/s
Velocity Head	1.09 ft
Specific Energy	4.02 ft
Froude Number	1.13
Flow Type	Supercritical

Worksheet

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Channel OS-6 (20060521)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.025
Channel Slope	0.010000 ft/ft
Left Side Slope	4.00 H : V
Right Side Slope	4.00 H : V
Bottom Width	4.00 ft
Discharge	328.00 cfs

Results	
Depth	2.75 ft
Flow Area	41.3 ft ²
Wetted Perimeter	26.68 ft
Top Width	26.00 ft
Critical Depth	2.89 ft
Critical Slope	0.007969 ft/ft
Velocity	7.95 ft/s
Velocity Head	0.98 ft
Specific Energy	3.73 ft
Froude Number	1.11
Flow Type	Supercritical

Worksheet

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Channel J-D (20060521)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.025
Channel Slope	0.010000 ft/ft
Left Side Slope	4.00 H : V
Right Side Slope	4.00 H : V
Bottom Width	4.00 ft
Discharge	386.00 cfs

Results	
Depth	2.95 ft
Flow Area	46.6 ft ²
Wetted Perimeter	28.32 ft
Top Width	27.60 ft
Critical Depth	3.11 ft
Critical Slope	0.007795 ft/ft
Velocity	8.28 ft/s
Velocity Head	1.07 ft
Specific Energy	4.02 ft
Froude Number	1.12
Flow Type	Supercritical

Worksheet

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Channel J-N5 (20060521)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.025
Channel Slope	0.005000 ft/ft
Left Side Slope	4.00 H : V
Right Side Slope	4.00 H : V
Bottom Width	25.00 ft
Discharge	722.00 cfs

Results	
Depth	2.85 ft
Flow Area	103.6 ft ²
Wetted Perimeter	48.47 ft
Top Width	47.77 ft
Critical Depth	2.56 ft
Critical Slope	0.007381 ft/ft
Velocity	6.97 ft/s
Velocity Head	0.76 ft
Specific Energy	3.60 ft
Froude Number	0.83
Flow Type	Subcritical

GOLDEN VALLEY RANCH

APPENDIX D

HYDROLOGY – (AREAS 1 – 3) LOCAL ANALYSIS

HEC-HMS Local Analysis – Results Junctions J-N5, J-S26, & J-MG1

Shed and Routing Parameters (Junctions J-N5 & J-MG1)

Areas 1 -3 Tables and Exhibits (from individual Technical Drainage Analysis, Areas 1-3)

Golden Valley Ranch Technical Drainage Study

Project: J-JN5 100yr-6hr
Description: Basin: JN-5 & Met: J-JN5 100yr-6hr & Control: Control 1

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
GC-1	0.0262	24.7	01Jan3000, 05:11	0.92
GC-2	0.0293	26.12	01Jan3000, 05:12	1.03
GC-3	0.0144	13.18	01Jan3000, 05:11	0.51
GC-4	0.0072	6.79	01Jan3000, 05:11	0.25
GC-5	0.0262	24.69	01Jan3000, 05:11	0.92
J-H	0.1147	228.14	01Jan3000, 05:13	10.53
J-N-17	0.2034	353.82	01Jan3000, 05:18	19.79
J-N10	0.005	11.63	01Jan3000, 05:12	0.55
J-N11	0.022	47.59	01Jan3000, 05:14	2.41
J-N12	0.039	86.55	01Jan3000, 05:13	4.27
J-N13	0.051	112.13	01Jan3000, 05:14	5.58
J-N14	0.061	131.51	01Jan3000, 05:14	6.68
J-N15	0.071	152.77	01Jan3000, 05:14	7.77
J-N18	0.011	24.44	01Jan3000, 05:13	1.2
J-N19	0.012	26.37	01Jan3000, 05:16	1.31
J-N20	0.018	38.47	01Jan3000, 05:13	1.97
J-N21	0.028	63.46	01Jan3000, 05:14	3.07
J-N22	0.039	88.19	01Jan3000, 05:12	4.27
J-N23	0.058	130.42	01Jan3000, 05:14	6.36
J-N24	0.068	132.42	01Jan3000, 05:16	7.45
J-N26	0.013	30.12	01Jan3000, 05:12	1.42
J-N30	0.021	44.18	01Jan3000, 05:17	2.3
J-N31	0.0452	102.41	01Jan3000, 05:12	4.95
J-N32	0.0514	116.09	01Jan3000, 05:12	5.63
J-N6	0.026	48.94	01Jan3000, 05:13	2.85
J-N7	0.041	80.28	01Jan3000, 05:15	4.49
J-N8	0.05	97.23	01Jan3000, 05:18	5.47
J-S17	0.016	34.48	01Jan3000, 05:13	1.75
J-S18	0.031	67.69	01Jan3000, 05:13	3.39
J-S19	0.058	123.72	01Jan3000, 05:15	6.35
J-S20	0.078	162.46	01Jan3000, 05:17	8.54
J-S21	0.013	31.27	01Jan3000, 05:12	1.42
JN-1	0.0543	39.44	01Jan3000, 05:13	3.5
JN-16	0.1752	332.96	01Jan3000, 05:15	17.24
JN-2	0.169	267.59	01Jan3000, 05:13	14.03
JN-25	0.2663	316.3	01Jan3000, 05:22	22.5
JN-3	0.1983	242.7	01Jan3000, 05:18	15.06
JN-5	0.5421	729.05	01Jan3000, 05:21	49.16
P2-58	0.009	18.87	01Jan3000, 05:14	0.98
P2-59	0.009	17.48	01Jan3000, 05:16	0.98
P2-60	0.011	23.29	01Jan3000, 05:14	1.2
P2-61	0.006	11.43	01Jan3000, 05:17	0.66
P2-62	0.012	23.76	01Jan3000, 05:15	1.31
P2-63	0.006	12.98	01Jan3000, 05:13	0.66
P2-64	0.013	28.69	01Jan3000, 05:12	1.42
P2-65	0.002	5.31	01Jan3000, 05:08	0.22
P2-66	0.014	26.67	01Jan3000, 05:17	1.53

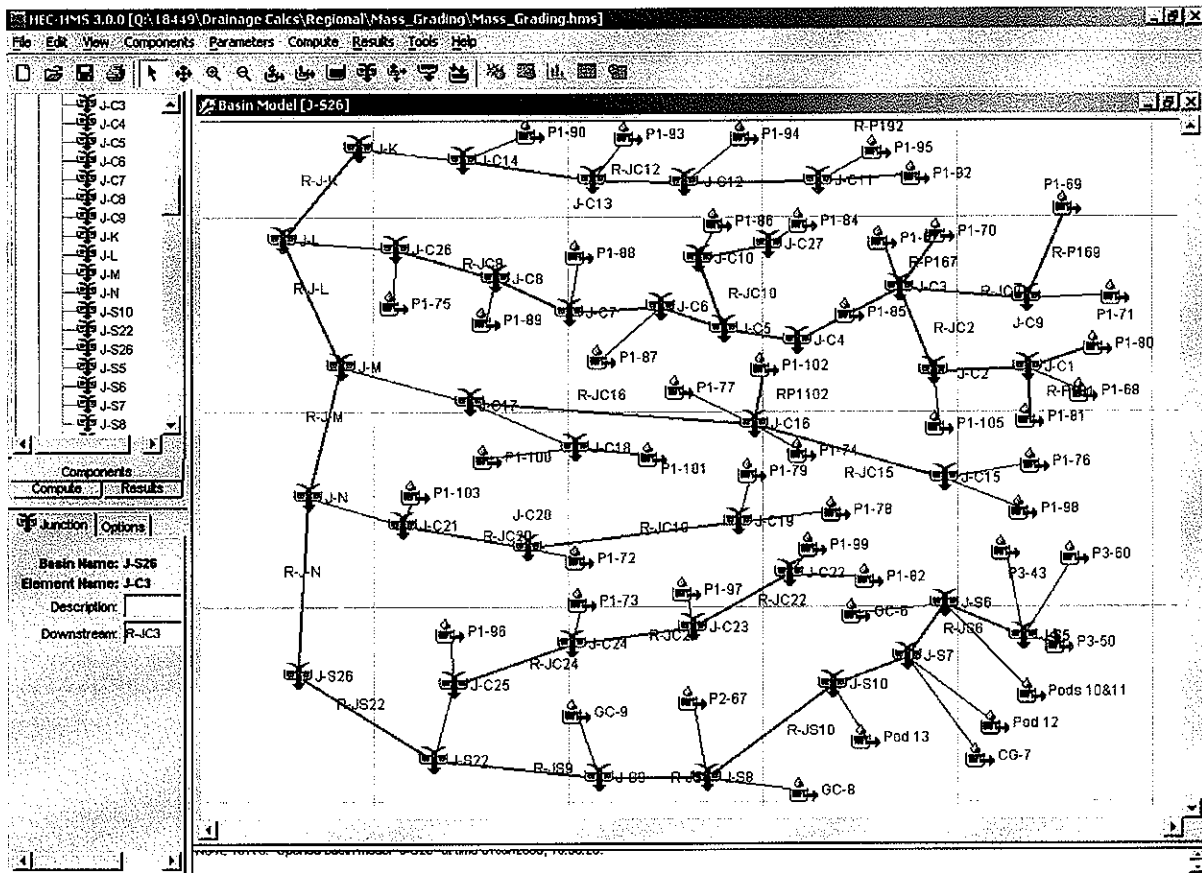
**Golden Valley Ranch
Technical Drainage Study**

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
P2-68	0.0066	14.56	01Jan3000, 05:12	0.72
P2-69	0.009	18.62	01Jan3000, 05:14	0.98
P2-70	0.02	43.84	01Jan3000, 05:13	2.19
P2-71	0.007	16.11	01Jan3000, 05:11	0.77
P2-72	0.01	19.73	01Jan3000, 05:16	1.09
P2-73	0.01	21.85	01Jan3000, 05:13	1.09
P2-74	0.009	20.3	01Jan3000, 05:12	0.98
P2-75	0.006	14.93	01Jan3000, 05:10	0.66
P2-76	0.011	23.14	01Jan3000, 05:14	1.2
P2-77	0.005	11.69	01Jan3000, 05:11	0.55
P2-78	0.008	20.44	01Jan3000, 05:09	0.88
P2-79	0.006	15.28	01Jan3000, 05:09	0.66
P2-80	0.003	7.23	01Jan3000, 05:10	0.33
P2-81	0.017	36.52	01Jan3000, 05:13	1.86
P2-82	0.008	19.36	01Jan3000, 05:10	0.88
P2-83	0.012	25.68	01Jan3000, 05:13	1.31
P2-84	0.009	21.39	01Jan3000, 05:11	0.98
P2-85	0.005	12.01	01Jan3000, 05:10	0.55
P2-86	0.002	4.88	01Jan3000, 05:10	0.22
P2-87	0.009	19.86	01Jan3000, 05:12	0.98
P2-88	0.001	2.03	01Jan3000, 05:15	0.11
P2-89	0.011	28.11	01Jan3000, 05:09	1.2
P2-90	0.007	17.25	01Jan3000, 05:10	0.77
P2-91	0.002	4.71	01Jan3000, 05:11	0.22
P2-92	0.008	18.49	01Jan3000, 05:11	0.88
P2-93	0.0062	14.49	01Jan3000, 05:11	0.68
P2-94	0.0062	15.96	01Jan3000, 05:09	0.68
P3-44	0.0281	49.08	01Jan3000, 05:15	2.58
Pod 61	0.0709	141.08	01Jan3000, 05:12	6.51
Pod 62	0.0438	88.9	01Jan3000, 05:11	4.02
R-JN-16	0.1752	306.73	01Jan3000, 05:20	17.24
R-JN-17	0.2034	312.99	01Jan3000, 05:24	19.79
R-JN-2	0.169	223.54	01Jan3000, 05:19	14.03
R-JN-3	0.1983	204.71	01Jan3000, 05:26	15.06
R-JN10	0.005	11.6	01Jan3000, 05:16	0.55
R-JN11	0.022	47.51	01Jan3000, 05:15	2.41
R-JN12	0.039	86.51	01Jan3000, 05:14	4.27
R-JN13	0.051	111.95	01Jan3000, 05:14	5.58
R-JN14	0.061	131.37	01Jan3000, 05:15	6.68
R-JN18	0.011	24.35	01Jan3000, 05:16	1.21
R-JN19	0.012	26.32	01Jan3000, 05:18	1.32
R-JN21	0.028	63.44	01Jan3000, 05:14	3.07
R-JN22	0.039	88.01	01Jan3000, 05:12	4.27
R-JN26	0.013	30.1	01Jan3000, 05:14	1.43
R-JN31	0.0452	102.25	01Jan3000, 05:13	4.95
R-JN32	0.0514	116.04	01Jan3000, 05:14	5.63
R-JN6	0.026	48.83	01Jan3000, 05:15	2.85
R-JN7	0.041	80	01Jan3000, 05:18	4.49
R-JN8	0.05	97.22	01Jan3000, 05:18	5.48

**Golden Valley Ranch
Technical Drainage Study**

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R-JS17	0.016	34.45	01Jan3000, 05:15	1.75
R-JS18	0.031	67.46	01Jan3000, 05:16	3.4
R-JS19	0.058	123.41	01Jan3000, 05:18	6.36
R-JS21	0.013	31.22	01Jan3000, 05:13	1.42
R-P260	0.011	23.24	01Jan3000, 05:16	1.21
R-P261	0.006	11.42	01Jan3000, 05:22	0.66
R-P265	0.002	5.24	01Jan3000, 05:16	0.22
R-P279	0.006	15.22	01Jan3000, 05:13	0.66
R-P282	0.008	19.28	01Jan3000, 05:13	0.88
R-P285	0.005	11.99	01Jan3000, 05:14	0.55
R-P286	0.002	4.84	01Jan3000, 05:16	0.22
R-P291	0.002	4.69	01Jan3000, 05:14	0.22
R-P3-44	0.0281	28.22	01Jan3000, 05:29	2.58
R-pod62	0.0709	140.67	01Jan3000, 05:13	6.51

Golden Valley Ranch Technical Drainage Study



Golden Valley Ranch Technical Drainage Study

Project: J-S26

Description: Basin: J-S26 & Met: J-S26 & Control: Control 1

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
CG-7	0.0167	26	01Jan3000, 05:10	1.04
GC-6	0.0304	37.99	01Jan3000, 05:15	1.88
GC-8	0.0924	109.37	01Jan3000, 05:15	5.73
GC-9	0.0417	48.87	01Jan3000, 05:15	2.58
J-C1	0.026	51.62	01Jan3000, 05:15	2.83
J-C10	0.026	49.7	01Jan3000, 05:15	2.83
J-C11	0.008	16.27	01Jan3000, 05:10	0.87
J-C12	0.012	23.65	01Jan3000, 05:15	1.31
J-C13	0.016	31.51	01Jan3000, 05:15	1.74
J-C14	0.02	39.37	01Jan3000, 05:15	2.18
J-C15	0.021	40.04	01Jan3000, 05:15	2.28
J-C16	0.044	83.87	01Jan3000, 05:15	4.78
J-C17	0.056	106.95	01Jan3000, 05:15	6.09
J-C18	0.012	23.17	01Jan3000, 05:15	1.3
J-C19	0.019	37.85	01Jan3000, 05:15	2.07
J-C2	0.033	64.25	01Jan3000, 05:15	3.59
J-C20	0.023	45.78	01Jan3000, 05:15	2.5
J-C21	0.026	50.62	01Jan3000, 05:15	2.83
J-C22	0.01	22.21	01Jan3000, 05:10	1.09
J-C23	0.015	31.29	01Jan3000, 05:15	1.63
J-C24	0.018	35.48	01Jan3000, 05:15	1.96
J-C25	0.036	65.54	01Jan3000, 05:15	3.92
J-C26	0.138	253.04	01Jan3000, 05:20	15.01
J-C27	0.012	25.96	01Jan3000, 05:10	1.3
J-C3	0.062	121.94	01Jan3000, 05:15	6.74
J-C4	0.069	135.85	01Jan3000, 05:15	7.51
J-C5	0.095	185.43	01Jan3000, 05:15	10.33
J-C6	0.103	200.05	01Jan3000, 05:15	11.2
J-C7	0.117	222.83	01Jan3000, 05:15	12.72
J-C8	0.131	243.31	01Jan3000, 05:15	14.25
J-C9	0.006	14.13	01Jan3000, 05:10	0.65
J-K	0.02	39.37	01Jan3000, 05:15	2.18
J-L	0.158	290.61	01Jan3000, 05:15	17.19
J-M	0.214	392.38	01Jan3000, 05:15	23.3
J-N	0.24	436.84	01Jan3000, 05:15	26.16
J-S10	0.5167	458.82	01Jan3000, 05:30	47.27
J-S22	0.7065	488.15	01Jan3000, 05:30	61.47
J-S26	0.9465	798.57	01Jan3000, 05:20	87.65
J-S5	0.1092	183.64	01Jan3000, 05:15	10.1
J-S6	0.3836	503.78	01Jan3000, 05:20	33.03
J-S7	0.464	482.8	01Jan3000, 05:25	41.29
J-S8	0.6288	468.63	01Jan3000, 05:25	54.96
J-S9	0.6705	459.2	01Jan3000, 05:40	57.54
P1-100	0.005	10.12	01Jan3000, 05:10	0.54
P1-101	0.007	13.5	01Jan3000, 05:15	0.76
P1-102	0.003	6.36	01Jan3000, 05:10	0.33
P1-103	0.003	6.27	01Jan3000, 05:10	0.33
P1-105	0.007	13.6	01Jan3000, 05:15	0.76

**Golden Valley Ranch
Technical Drainage Study**

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
P1-67	0.011	22.5	01Jan3000, 05:10	1.2
P1-68	0.008	15.16	01Jan3000, 05:15	0.87
P1-69	0.002	4.73	01Jan3000, 05:10	0.22
P1-70	0.012	23.85	01Jan3000, 05:15	1.3
P1-71	0.004	9.56	01Jan3000, 05:10	0.43
P1-72	0.004	8.27	01Jan3000, 05:10	0.43
P1-73	0.003	6.99	01Jan3000, 05:10	0.33
P1-74	0.011	23.33	01Jan3000, 05:10	1.2
P1-75	0.007	15.35	01Jan3000, 05:10	0.76
P1-76	0.009	17.53	01Jan3000, 05:15	0.98
P1-77	0.009	21.08	01Jan3000, 05:10	0.98
P1-78	0.009	17.73	01Jan3000, 05:15	0.98
P1-79	0.01	21.1	01Jan3000, 05:10	1.09
P1-80	0.016	31.82	01Jan3000, 05:15	1.74
P1-81	0.002	4.94	01Jan3000, 05:05	0.22
P1-82	0.008	17.9	01Jan3000, 05:10	0.87
P1-84	0.012	25.96	01Jan3000, 05:10	1.3
P1-85	0.007	15.96	01Jan3000, 05:10	0.76
P1-86	0.014	24.25	01Jan3000, 05:15	1.52
P1-87	0.008	14.4	01Jan3000, 05:15	0.87
P1-88	0.014	26	01Jan3000, 05:15	1.52
P1-89	0.014	22.49	01Jan3000, 05:20	1.52
P1-90	0.004	8.65	01Jan3000, 05:10	0.43
P1-92	0.004	8.31	01Jan3000, 05:10	0.43
P1-93	0.004	8.44	01Jan3000, 05:10	0.43
P1-94	0.004	7.55	01Jan3000, 05:15	0.43
P1-95	0.004	8.36	01Jan3000, 05:10	0.43
P1-96	0.018	31.18	01Jan3000, 05:15	1.96
P1-97	0.005	9.32	01Jan3000, 05:15	0.54
P1-98	0.012	22.51	01Jan3000, 05:15	1.3
P1-99	0.002	4.31	01Jan3000, 05:10	0.22
P2-67	0.0197	41.05	01Jan3000, 05:10	1.96
P3-43	0.0393	59.06	01Jan3000, 05:10	2.83
P3-50	0.0303	57.55	01Jan3000, 05:15	3.15
P3-60	0.0396	69.51	01Jan3000, 05:15	4.12
Pod 12	0.0637	155.35	01Jan3000, 05:10	7.23
Pod 13	0.0527	161.78	01Jan3000, 05:05	5.98
Pods 10&11	0.244	346.73	01Jan3000, 05:20	21.04
R-C-11	0.008	16.1	01Jan3000, 05:15	0.87
R-J-K	0.02	39.26	01Jan3000, 05:15	2.18
R-J-L	0.158	287.9	01Jan3000, 05:20	17.21
R-J-M	0.214	386.22	01Jan3000, 05:15	23.33
R-J-N	0.24	431.8	01Jan3000, 05:15	26.18
R-JC1	0.026	50.65	01Jan3000, 05:15	2.83
R-JC10	0.026	49.56	01Jan3000, 05:15	2.83
R-JC12	0.012	23.52	01Jan3000, 05:15	1.31
R-JC13	0.016	31.4	01Jan3000, 05:15	1.75
R-JC15	0.021	38.68	01Jan3000, 05:15	2.28
R-JC16	0.044	83.78	01Jan3000, 05:15	4.79
R-JC19	0.019	37.79	01Jan3000, 05:15	2.07

**Golden Valley Ranch
Technical Drainage Study**

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R-JC2	0.033	64.13	01Jan3000, 05:15	3.59
R-JC20	0.023	44.63	01Jan3000, 05:15	2.5
R-JC22	0.01	21.97	01Jan3000, 05:15	1.09
R-JC23	0.015	29.74	01Jan3000, 05:15	1.64
R-JC24	0.018	34.36	01Jan3000, 05:15	1.97
R-JC27	0.012	25.45	01Jan3000, 05:15	1.31
R-JC3	0.062	122.14	01Jan3000, 05:15	6.74
R-JC4	0.069	135.87	01Jan3000, 05:15	7.51
R-JC5	0.095	185.66	01Jan3000, 05:15	10.33
R-JC6	0.103	196.83	01Jan3000, 05:15	11.2
R-JC7	0.117	222.14	01Jan3000, 05:15	12.72
R-JC8	0.131	242.41	01Jan3000, 05:20	14.25
R-JC9	0.006	13.98	01Jan3000, 05:10	0.65
R-JS10	0.5167	420.38	01Jan3000, 05:40	47.27
R-JS22	0.7065	465.63	01Jan3000, 05:50	61.47
R-JS5	0.1092	130.58	01Jan3000, 05:25	10.1
R-JS6	0.3836	422.37	01Jan3000, 05:30	33.03
R-JS7	0.464	449.1	01Jan3000, 05:30	41.29
R-JS8	0.6288	446.96	01Jan3000, 05:45	54.96
R-JS9	0.6705	458.56	01Jan3000, 05:45	57.54
R-P167	0.011	22.23	01Jan3000, 05:15	1.19
R-P169	0.002	4.58	01Jan3000, 05:10	0.22
R-P170	0.012	23.84	01Jan3000, 05:15	1.3
R-P179	0.01	20.56	01Jan3000, 05:10	1.09
R-P180	0.016	31.76	01Jan3000, 05:15	1.74
R-P181	0.002	4.91	01Jan3000, 05:10	0.22
R-P192	0.004	8.07	01Jan3000, 05:15	0.44
R-P2-67	0.0197	39.16	01Jan3000, 05:15	1.96
RP1101	0.007	13.2	01Jan3000, 05:15	0.76
RP1102	0.003	6.15	01Jan3000, 05:15	0.33
R-P2-67	0.0197	39.15	01Jan3000, 05:15	1.96
RP1101	0.007	13.2	01Jan3000, 05:15	0.76
RP1102	0.003	6.15	01Jan3000, 05:15	0.33



Golden Valley Ranch Technical Drainage Study

Project: J-MG1 100yr-6hr
Description: Basin: J-MG1 & Met: J-MG1 100yr-6hr & Control: Control 1

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
GC-10	0.054	32.47	01Jan3000, 05:15	1.62
GC-11	0.134	50.2	01Jan3000, 05:30	4.01
GC-6	0.0304	18.51	01Jan3000, 05:15	0.91
GC-7	0.0167	13.38	01Jan3000, 05:10	0.5
GC-8	0.0924	50.99	01Jan3000, 05:15	2.77
GC-9	0.0417	22.67	01Jan3000, 05:15	1.25
J-C1	0.026	51.36	01Jan3000, 05:15	2.81
J-C10	0.026	49.44	01Jan3000, 05:15	2.81
J-C11	0.008	16.18	01Jan3000, 05:10	0.87
J-C12	0.012	23.53	01Jan3000, 05:15	1.3
J-C13	0.016	31.34	01Jan3000, 05:15	1.73
J-C14	0.02	39.16	01Jan3000, 05:15	2.17
J-C15	0.021	39.83	01Jan3000, 05:15	2.27
J-C16	0.044	83.44	01Jan3000, 05:15	4.75
J-C17	0.056	106.39	01Jan3000, 05:15	6.06
J-C18	0.012	23.05	01Jan3000, 05:15	1.3
J-C19	0.019	37.66	01Jan3000, 05:15	2.06
J-C2	0.033	63.93	01Jan3000, 05:15	3.57
J-C20	0.023	45.54	01Jan3000, 05:15	2.49
J-C21	0.026	50.36	01Jan3000, 05:15	2.81
J-C22	0.01	22.1	01Jan3000, 05:10	1.08
J-C23	0.015	31.09	01Jan3000, 05:15	1.63
J-C24	0.018	35.29	01Jan3000, 05:15	1.95
J-C25	0.036	65.18	01Jan3000, 05:15	3.9
J-C26	0.138	251.82	01Jan3000, 05:20	14.92
J-C27	0.012	25.82	01Jan3000, 05:10	1.3
J-C3	0.062	121.33	01Jan3000, 05:15	6.71
J-C4	0.069	135.19	01Jan3000, 05:15	7.46
J-C5	0.095	184.53	01Jan3000, 05:15	10.28
J-C6	0.103	199.08	01Jan3000, 05:15	11.14
J-C7	0.117	221.74	01Jan3000, 05:15	12.65
J-C8	0.131	242.04	01Jan3000, 05:15	14.17
J-C9	0.006	14.06	01Jan3000, 05:10	0.65
J-K	0.02	39.16	01Jan3000, 05:15	2.17
J-L	0.158	289	01Jan3000, 05:15	17.09
J-M	0.214	390.22	01Jan3000, 05:15	23.18
J-MG1	1.4525	995.1	01Jan3000, 05:30	104.63
J-N	0.24	434.44	01Jan3000, 05:15	26.02
J-S10	0.5167	432.75	01Jan3000, 05:35	45.5
J-S22	0.7065	430.66	01Jan3000, 05:30	55.36
J-S26	0.9465	747.62	01Jan3000, 05:20	81.4
J-S5	0.1092	182.59	01Jan3000, 05:15	10.04
J-S6	0.3836	485.67	01Jan3000, 05:20	31.86
J-S7	0.464	459.01	01Jan3000, 05:25	39.55
J-S8	0.6288	426.91	01Jan3000, 05:35	50.21
J-S9	0.6705	412.91	01Jan3000, 05:45	51.46
MG-A	0.131	87.02	01Jan3000, 05:30	7.25
MG-B	0.187	124.36	01Jan3000, 05:30	10.35

**Golden Valley Ranch
Technical Drainage Study**

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
P1-100	0.005	10.07	01Jan3000, 05:10	0.54
P1-101	0.007	13.43	01Jan3000, 05:15	0.76
P1-102	0.003	6.33	01Jan3000, 05:10	0.32
P1-103	0.003	6.23	01Jan3000, 05:10	0.32
P1-105	0.007	13.53	01Jan3000, 05:15	0.76
P1-67	0.011	22.39	01Jan3000, 05:10	1.19
P1-68	0.008	15.08	01Jan3000, 05:15	0.86
P1-69	0.002	4.71	01Jan3000, 05:10	0.22
P1-70	0.012	23.73	01Jan3000, 05:15	1.3
P1-71	0.004	9.51	01Jan3000, 05:10	0.43
P1-72	0.004	8.23	01Jan3000, 05:10	0.43
P1-73	0.003	6.95	01Jan3000, 05:10	0.32
P1-74	0.011	23.2	01Jan3000, 05:10	1.19
P1-75	0.007	15.27	01Jan3000, 05:10	0.76
P1-76	0.009	17.44	01Jan3000, 05:15	0.97
P1-77	0.009	20.98	01Jan3000, 05:10	0.97
P1-78	0.009	17.64	01Jan3000, 05:15	0.97
P1-79	0.01	20.99	01Jan3000, 05:10	1.08
P1-80	0.016	31.66	01Jan3000, 05:15	1.73
P1-81	0.002	4.92	01Jan3000, 05:05	0.22
P1-82	0.008	17.81	01Jan3000, 05:10	0.86
P1-84	0.012	25.82	01Jan3000, 05:10	1.3
P1-85	0.007	15.88	01Jan3000, 05:10	0.76
P1-86	0.014	24.12	01Jan3000, 05:15	1.51
P1-87	0.008	14.32	01Jan3000, 05:15	0.86
P1-88	0.014	25.86	01Jan3000, 05:15	1.51
P1-89	0.014	22.37	01Jan3000, 05:20	1.51
P1-90	0.004	8.61	01Jan3000, 05:10	0.43
P1-92	0.004	8.27	01Jan3000, 05:10	0.43
P1-93	0.004	8.4	01Jan3000, 05:10	0.43
P1-94	0.004	7.52	01Jan3000, 05:15	0.43
P1-95	0.004	8.31	01Jan3000, 05:10	0.43
P1-96	0.018	31.01	01Jan3000, 05:15	1.95
P1-97	0.005	9.27	01Jan3000, 05:15	0.54
P1-98	0.012	22.4	01Jan3000, 05:15	1.3
P1-99	0.002	4.28	01Jan3000, 05:10	0.22
P2-67	0.0197	40.83	01Jan3000, 05:10	1.95
P3-43	0.0393	58.66	01Jan3000, 05:10	2.81
P3-50	0.0303	57.25	01Jan3000, 05:15	3.14
P3-60	0.0396	69.14	01Jan3000, 05:15	4.1
Pod 12	0.0637	154.59	01Jan3000, 05:10	7.19
Pod 13	0.0527	161.01	01Jan3000, 05:05	5.95
Pods 10&11	0.244	344.64	01Jan3000, 05:20	20.91
R-C-11	0.008	16.01	01Jan3000, 05:15	0.87
R-J-K	0.02	39.06	01Jan3000, 05:15	2.17
R-J-L	0.158	286.49	01Jan3000, 05:20	17.12
R-J-M	0.214	384.07	01Jan3000, 05:15	23.2
R-J-N	0.24	429.49	01Jan3000, 05:15	26.04
R-JC1	0.026	50.4	01Jan3000, 05:15	2.81
R-JC10	0.026	49.31	01Jan3000, 05:15	2.81

**Golden Valley Ranch
Technical Drainage Study**

Hydrologic Element	Drainage Area (sq mi)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R-JC12	0.012	23.4	01Jan3000, 05:15	1.3
R-JC13	0.016	31.23	01Jan3000, 05:15	1.74
R-JC15	0.021	38.47	01Jan3000, 05:15	2.27
R-JC16	0.044	83.34	01Jan3000, 05:15	4.76
R-JC19	0.019	37.6	01Jan3000, 05:15	2.06
R-JC2	0.033	63.8	01Jan3000, 05:15	3.57
R-JC20	0.023	44.41	01Jan3000, 05:15	2.49
R-JC22	0.01	21.82	01Jan3000, 05:15	1.09
R-JC23	0.015	29.57	01Jan3000, 05:15	1.63
R-JC24	0.018	34.17	01Jan3000, 05:15	1.96
R-JC27	0.012	25.32	01Jan3000, 05:15	1.3
R-JC3	0.062	121.55	01Jan3000, 05:15	6.71
R-JC4	0.069	135.22	01Jan3000, 05:15	7.46
R-JC5	0.095	184.76	01Jan3000, 05:15	10.28
R-JC6	0.103	195.87	01Jan3000, 05:15	11.14
R-JC7	0.117	220.99	01Jan3000, 05:15	12.65
R-JC8	0.131	241.25	01Jan3000, 05:20	14.17
R-JC9	0.006	13.91	01Jan3000, 05:10	0.65
R-JS10	0.5167	398.95	01Jan3000, 05:40	45.5
R-JS22	0.7065	419.05	01Jan3000, 05:55	55.36
R-JS26	0.9465	726.79	01Jan3000, 05:25	81.4
R-JS5	0.1092	129.81	01Jan3000, 05:25	10.04
R-JS6	0.3836	405.74	01Jan3000, 05:30	31.86
R-JS7	0.464	424.71	01Jan3000, 05:35	39.55
R-JS8	0.6288	407.34	01Jan3000, 05:50	50.21
R-JS9	0.6705	412.67	01Jan3000, 05:50	51.46
R-P167	0.011	22.11	01Jan3000, 05:15	1.19
R-P169	0.002	4.55	01Jan3000, 05:10	0.22
R-P170	0.012	23.72	01Jan3000, 05:15	1.3
R-P179	0.01	20.45	01Jan3000, 05:10	1.08
R-P180	0.016	31.59	01Jan3000, 05:15	1.73
R-P181	0.002	4.87	01Jan3000, 05:10	0.22
R-P192	0.004	8.03	01Jan3000, 05:15	0.43
R-P2-67	0.0197	38.95	01Jan3000, 05:15	1.95
RP1101	0.007	13.13	01Jan3000, 05:15	0.76
RP1102	0.003	6.12	01Jan3000, 05:15	0.32

**Golden Valley Ranch
Technical Drainage Study**

Shed Parameters (SCS Methods)

Shed	Area (sq mi)	CN	TLag (min)
GC-1	0.0262	79	9.487
GC-2	0.0293	79	10.545
GC-3	0.0144	79	10.07
GC-4	0.0072	79	9.5
GC-5	0.0262	79	9.5
P2-58	0.009	91	15.3
P2-59	0.009	91	17.6
P2-60	0.011	91	15
P2-61	0.006	91	18.2
P2-62	0.012	91	17
P2-63	0.006	91	14.4
P2-64	0.013	91	13.8
P2-65	0.002	91	8.6
P2-66	0.014	91	18.2
P2-68	0.0066	91	13.8
P2-69	0.009	91	15.7
P2-70	0.02	91	14
P2-71	0.007	91	12.6
P2-72	0.01	91	17.1
P2-73	0.01	91	14.1
P2-74	0.009	91	13.2
P2-75	0.006	91	10.4
P2-76	0.011	91	15.2
P2-77	0.005	91	12.2
P2-78	0.008	91	9.7
P2-79	0.006	91	9.8
P2-80	0.003	91	11.3
P2-81	0.017	91	14.6
P2-82	0.008	91	11.2
P2-83	0.012	91	14.7
P2-84	0.009	91	11.7
P2-85	0.005	91	11.4
P2-86	0.002	91	11
P2-87	0.009	91	13.8
P2-88	0.001	91	16.2
P2-89	0.011	91	9.7
P2-90	0.007	91	10.7
P2-91	0.002	91	12
P2-92	0.008	91	12.5
P2-93	0.0062	91	12.2
P2-94	0.0062	91	9.5
P3-44	0.0281	87	16.4
Pod 61	0.0709	87	12.79
Pod 62	0.0438	87	12.23

Golden Valley Ranch **Technical Drainage Study**

Kinematic Routing

Reach	Length (ft)	Slope (ft/ft)	Manning	Subreaches	Shape	Bottom (ft)	Sideslope
R-JN10	1134	0.011	0.016	5	Trapezoid	60	0.5
R-JN11	260	0.006	0.016	5	Trapezoid	60	0.5
R-JN12	270	0.007	0.016	5	Trapezoid	60	0.5
R-JN13	180	0.006	0.016	5	Trapezoid	60	0.5
R-JN14	200	0.01	0.016	5	Trapezoid	60	0.5
R-JN18	1016	0.011	0.016	5	Trapezoid	60	0.5
R-JN19	490	0.005	0.016	5	Trapezoid	60	0.5
R-JN21	140	0.017	0.016	5	Trapezoid	60	0.5
R-JN22	130	0.0114	0.016	5	Trapezoid	60	0.5
R-JN26	490	0.005	0.016	5	Trapezoid	60	0.5
R-JN31	480	0.0079	0.016	5	Trapezoid	60	0.5
R-JN32	640	0.005	0.016	5	Trapezoid	60	0.5
R-JN6	1084	0.011	0.016	5	Trapezoid	60	0.5
R-JN7	1590	0.009	0.016	5	Trapezoid	60	0.5
R-JN8	137	0.014	0.016	5	Trapezoid	60	0.5
R-JS17	725	0.008	0.016	5	Trapezoid	60	0.5
R-JS18	1480	0.006	0.016	5	Trapezoid	60	0.5
R-JS19	1480	0.006	0.016	5	Trapezoid	60	0.5
R-JS21	230	0.005	0.016	5	Trapezoid	60	0.5
R-P260	730	0.015	0.016	5	Trapezoid	60	0.5
R-P261	1310	0.01	0.016	5	Trapezoid	60	0.5
R-P265	1238	0.007	0.016	5	Trapezoid	60	0.5
R-P279	811	0.005	0.016	5	Trapezoid	60	0.5
R-P282	915	0.008	0.016	5	Trapezoid	60	0.5
R-P285	850	0.008	0.016	5	Trapezoid	60	0.5
R-P286	900	0.008	0.016	5	Trapezoid	60	0.5
R-P291	590	0.01	0.016	5	Trapezoid	60	0.5
R-pod62	1900	0.01	0.013	2	Circle	4	

Modified Puls Routing

Reach Routing Table

Golden Valley Ranch

Technical Drainage Study

Shed Parameters (SCS Methods)

Shed	Area (sq mi)	CN	TLag (min)
CG-7	0.0167	79	7.38
GC-6	0.0304	79	13.17
GC-8	0.0924	79	15.37
GC-9	0.0417	79	15.65
MG	0.34	79	26
P1-100	0.005	91	13.7
P1-101	0.007	91	15.8
P1-102	0.003	91	12.8
P1-103	0.003	91	13.1
P1-105	0.007	91	15.5
P1-67	0.011	91	13.5
P1-68	0.008	91	16.4
P1-69	0.002	91	9.7
P1-70	0.012	91	14.2
P1-71	0.004	91	9.1
P1-72	0.004	91	13.3
P1-73	0.003	91	10.4
P1-74	0.011	91	12.8
P1-75	0.007	91	12.1
P1-76	0.009	91	15.4
P1-77	0.009	91	10.2
P1-78	0.009	91	14.8
P1-79	0.01	91	12.9
P1-80	0.016	91	14.1
P1-81	0.002	91	7.9
P1-82	0.008	91	11.6
P1-84	0.012	91	12.4
P1-85	0.007	91	11.1
P1-86	0.014	91	18.9
P1-87	0.008	91	17.9
P1-88	0.014	91	17
P1-89	0.014	91	22
P1-90	0.004	91	12.4
P1-92	0.004	91	13.2
P1-93	0.004	91	12.9
P1-94	0.004	91	16.5
P1-95	0.004	91	13.1
P1-96	0.018	91	18.9
P1-97	0.005	91	16.9
P1-98	0.012	91	16.7
P1-99	0.002	91	12.5
P2-67	0.0197	89	11.65
P3-43	0.0393	82	12.38
P3-50	0.0303	90	14.97
P3-60	0.0396	90	17.58
Pod 12	0.0637	92	9.69
Pod 13	0.0527	92	3.45
Pods 10&11	0.244	85.8	18.64

Golden Valley Ranch Technical Drainage Study

Kinematic Routing

Reach	Length (ft)	Slope (ft/ft)	Manning	Subreaches	Shape	Bottom (ft)	Sideslope
R-C-11	250	0.007	0.016	5	Trapezoid	60	0.5
R-JC1	530	0.01	0.016	5	Trapezoid	20	0.5
R-JC10	50	0.01	0.016	5	Trapezoid	20	0.5
R-JC12	170	0.007	0.016	5	Trapezoid	60	0.5
R-JC13	150	0.007	0.016	5	Trapezoid	60	0.5
R-JC15	820	0.007	0.016	5	Trapezoid	60	0.5
R-JC16	330	0.007	0.016	5	Trapezoid	60	0.5
R-JC19	830	0.007	0.016	5	Trapezoid	60	0.5
R-JC2	50	0.01	0.016	5	Trapezoid	20	0.5
R-JC20	680	0.0109	0.016	5	Trapezoid	60	0.5
R-JC22	1000	0.01	0.025	5	Trapezoid	100	0
R-JC23	550	0.008	0.016	5	Trapezoid	60	0.5
R-JC24	390	0.009	0.016	5	Trapezoid	60	0.5
R-JC27	1130	0.007	0.016	5	Trapezoid	60	0.5
R-JC9	200	0.01	0.023	5	Trapezoid	20	0.5
R-J-K	379	0.008	0.013	5	Rectangle	8	
R-J-L	796	0.008	0.013	5	Rectangle	8	
R-J-M	882	0.008	0.013	5	Rectangle	8	
R-J-N	609	0.008	0.013	5	Rectangle	8	
RP1101	400	0.007	0.016	5	Trapezoid	60	0.5
RP1102	380	0.007	0.016	5	Trapezoid	60	0.5
R-P167	650	0.005	0.016	5	Trapezoid	60	0.5
R-P169	330	0.01	0.025	5	Trapezoid	50	0.5
R-P170	50	0.01	0.016	5	Trapezoid	20	0.5
R-P179	200	0.007	0.016	5	Trapezoid	60	0.5
R-P180	1140	0.007	0.016	5	Trapezoid	60	0.5
R-P181	730	0.007	0.016	5	Trapezoid	60	0.5
R-P192	250	0.007	0.016	5	Trapezoid	60	0.5
R-P2-67	1000	0.0071	0.025	2	Trapezoid	25	10

Modified Puls Routing

Reach	Routing Table		
R-JC3	R-JC3	1	flow = Outflow
R-JC4	R-JC4	1	flow = Outflow
R-JC5	R-JC5	1	flow = Outflow
R-JC6	R-JC6	1	flow = Outflow
R-JC7	R-JC7	1	flow = Outflow
R-JC8	R-JC8	1	flow = Outflow
R-JS10	R-JS10	1	flow = Outflow
R-JS22	R-JS8	1	flow = Outflow
R-JS26	R-JS26	1	flow = Outflow
R-JS5	R-JS5	1	flow = Outflow
R-JS6	R-JS6	1	flow = Outflow
R-JS7	R-JS7	1	flow = Outflow
R-JS8	R-JS8	1	flow = Outflow
R-JS9	R-JS9	1	flow = Outflow

Golden Valley Ranch Technical Drainage Study

Golf Course - North Leg				Golf Course - Center Leg				Area 1 - Open Space			
0	R-P3-44	JN-2	JN-3	0	R-JS-20	R-JN-16	R-JN-17	0	F-JC8	sta450-0	
Flow	sta51-33	sta31-17	sta17-6	Flow	sta35-25	sta25-17	sta17-3	Flow		Storage	
(cfs)	(ac-ft)	(ac-ft)	(ac-ft)	(cfs)	(ac-ft)	(ac-ft)	(ac-ft)	(cfs)		(ac-ft)	
25	0.960216	0.805425	0.567149	25	1.2523	0.9435	1.8021	25		0.08514	
50	1.454075	1.205987	0.922394	50	1.5296	1.3105	2.2576	50		0.16326	
75	1.876653	1.538718	1.197808	75	1.7502	1.6101	2.5762	75		0.26618	
100	2.231152	1.832828	1.414463	100	1.9389	1.8765	2.9167	100		0.40819	
125	2.573829	2.10676	1.665461	125	2.1101	2.1243	3.2477	125		0.57128	
150	2.882105	2.366766	1.938189	150	2.2697	2.3533	3.5433	150		0.73724	
175	3.275413	2.609809	2.245282	175	2.4155	2.5692	3.8253	200		1.16079	
200	3.77764	2.843372	2.526997	200	2.5590	2.7784	4.0807	250		1.64304	
250	5.087408	3.284176	3.090301	250	2.8300	3.1681	4.6527	300		2.20293	

Golf Course - South Leg				Area 1 - Open Space			
0	R-JS5	R-JS6	R-JS7	0	R-JS25	R-JS26	
Flow	114-103	103-91	91-77	Flow	23-16	16-7	
(cfs)	(ac-ft)	(ac-ft)	(ac-ft)	(cfs)	(ac-ft)	(ac-ft)	
100	41.3242	5.4793	4.8630	175	2.6971	2.6334	
150	43.0420	6.1599	5.4065	225	3.1038	2.9938	
200	44.0402	6.7562	5.8735	300	3.9253	3.7983	
250	44.7140	7.2902	6.3060	375	4.7431	4.2393	
300	43.0517	7.7873	6.7049	450	5.5216	4.6653	
350	41.0425	8.2535	7.0752	525	6.2579	5.0782	
400	39.6333	8.6939	7.4384	600	7.3429	5.4798	
450	35.7743	9.1198	7.7828	675	8.0724	5.8767	
500	34.7934	9.5346	8.1149	750	8.7823	6.8304	
0	0.0000	0.0000	0.0000	0.0000	0.0000	0	

Q:\18449\Drainage Calcs\Routing.xls
Modified Puls Routing

GOLDEN VALLEY RANCH

APPENDIX A

AREA 1 – RESULTS AND DATA

- **HEC-HMS 100-YR, 6-HR SIMULATION**
- **HEC-HMS 10-YR, 6-HR SIMULATION**
- **NOAA ATLAS 14 PRECIPITATION**
- **STANDARD FORM 4**

Project: Pod1_S_curve Simulation Run: Pod1-100yr

Start of Run: 01Jan3000, 01:00 Basin Model: POD 1
 End of Run: 02Jan3000, 01:55 Meteorologic Model: S-Pattern 1(3.00IN)
 Execution Time: 15Mar2006, 11:16:57 Control Specifications: Control 1

Volume Units: AC-FT

J-C1	0.0268	56.80	01Jan3000, 05:10	2.70
J-C10	0.0365	76.41	01Jan3000, 05:10	3.67
J-C11	0.0087	19.96	01Jan3000, 05:10	0.88
J-C12	0.0131	29.74	01Jan3000, 05:10	1.32
J-C13	0.0172	38.87	01Jan3000, 05:10	1.74
J-C14	0.0210	47.29	01Jan3000, 05:10	2.13
J-C15	0.0213	47.74	01Jan3000, 05:10	2.15
J-C16	0.0300	65.79	01Jan3000, 05:10	3.02
J-C17	0.0548	120.12	01Jan3000, 05:10	5.53
J-C18	0.0112	25.05	01Jan3000, 05:10	1.13
J-C19	0.0187	41.77	01Jan3000, 05:10	1.89
J-C2	0.0341	71.23	01Jan3000, 05:10	3.44
J-C20	0.0231	49.86	01Jan3000, 05:10	2.33
J-C21	0.0263	54.45	01Jan3000, 05:10	2.65
J-C22	0.0104	23.48	01Jan3000, 05:10	1.05
J-C23	0.0154	33.04	01Jan3000, 05:10	1.56
J-C24	0.0184	37.18	01Jan3000, 05:15	1.86
J-C25	0.0363	73.15	01Jan3000, 05:10	3.67
J-C26	0.1378	241.70	01Jan3000, 05:20	13.54
J-C27	0.0222	49.42	01Jan3000, 05:10	2.24
J-C3	0.0523	111.40	01Jan3000, 05:10	5.28
J-C4	0.0589	125.94	01Jan3000, 05:10	5.95
J-C5	0.0954	202.09	01Jan3000, 05:10	9.62
J-C6	0.1036	217.95	01Jan3000, 05:10	10.45
J-C7	0.1173	240.25	01Jan3000, 05:10	11.83

J-C8	0.1311	266.40	01Jan3000, 05:15	13.22
J-C9	0.0065	14.88	01Jan3000, 05:10	0.66
P1-100	0.0046	10.53	01Jan3000, 05:10	0.46
P1-101	0.0066	14.88	01Jan3000, 05:10	0.67
P1-102	0.0031	7.30	01Jan3000, 05:05	0.31
P1-103	0.0032	7.49	01Jan3000, 05:05	0.32
P1-105	0.0073	16.51	01Jan3000, 05:10	0.74
P1-67	0.0107	24.16	01Jan3000, 05:10	1.08
P1-68	0.0085	18.57	01Jan3000, 05:10	0.86
P1-69	0.0021	4.86	01Jan3000, 05:05	0.21
P1-70	0.0117	25.64	01Jan3000, 05:10	1.18
P1-71	0.0044	10.43	01Jan3000, 05:05	0.44
P1-72	0.0044	9.97	01Jan3000, 05:10	0.44
P1-73	0.0030	6.87	01Jan3000, 05:10	0.30
P1-74	0.0105	23.50	01Jan3000, 05:10	1.06
P1-75	0.0067	6.54	01Jan3000, 05:15	0.32
P1-76	0.0089	20.03	01Jan3000, 05:10	0.90
P1-77	0.0087	19.90	01Jan3000, 05:10	0.88
P1-78	0.0087	19.58	01Jan3000, 05:10	0.88
P1-79	0.0100	22.46	01Jan3000, 05:10	1.01
P1-80	0.0165	36.62	01Jan3000, 05:10	1.66
P1-81	0.0018	4.31	01Jan3000, 05:05	0.18
P1-82	0.0080	18.00	01Jan3000, 05:10	0.81
P1-83	0.0174	38.50	01Jan3000, 05:10	1.75
P1-84	0.0115	26.06	01Jan3000, 05:10	1.16
P1-85	0.0066	15.05	01Jan3000, 05:10	0.67
P1-86	0.0143	30.58	01Jan3000, 05:10	1.44
P1-87	0.0082	17.92	01Jan3000, 05:10	0.83
P1-88	0.0137	30.41	01Jan3000, 05:10	1.38
P1-89	0.0138	26.96	01Jan3000, 05:10	1.39
P1-90	0.0038	9.11	01Jan3000, 05:05	0.38
P1-91	0.0017	4.12	01Jan3000, 05:05	0.17

P1-92	0.0044	10.24	01Jan3000, 05:05	0.44
P1-93	0.0041	9.60	01Jan3000, 05:05	0.41
P1-94	0.0044	9.85	01Jan3000, 05:10	0.44
P1-95	0.0043	10.01	01Jan3000, 05:05	0.43
P1-96	0.0179	38.28	01Jan3000, 05:10	1.80
P1-97	0.0050	11.14	01Jan3000, 05:10	0.50
P1-98	0.0124	27.71	01Jan3000, 05:10	1.25
P1-99	0.0024	5.72	01Jan3000, 05:05	0.24
R-C-11	0.0087	19.89	01Jan3000, 05:10	0.88
R-JC1	0.0268	54.71	01Jan3000, 05:10	2.71
R-JC10	0.0365	76.14	01Jan3000, 05:10	3.68
R-JC12	0.0131	29.49	01Jan3000, 05:10	1.33
R-JC13	0.0172	38.63	01Jan3000, 05:10	1.75
R-JC15	0.0213	45.89	01Jan3000, 05:10	2.15
R-JC16	0.0300	64.39	01Jan3000, 05:10	3.03
R-JC19	0.0187	39.89	01Jan3000, 05:10	1.88
R-JC2	0.0341	70.98	01Jan3000, 05:10	3.44
R-JC20	0.0231	47.13	01Jan3000, 05:10	2.33
R-JC22	0.0104	22.94	01Jan3000, 05:15	1.05
R-JC23	0.0154	32.30	01Jan3000, 05:15	1.56
R-JC24	0.0184	37.14	01Jan3000, 05:15	1.87
R-JC27	0.0222	46.16	01Jan3000, 05:15	2.23
R-JC3	0.0523	110.89	01Jan3000, 05:10	5.28
R-JC4	0.0589	125.94	01Jan3000, 05:10	5.95
R-JC5	0.0954	200.03	01Jan3000, 05:10	9.62
R-JC6	0.1036	212.89	01Jan3000, 05:15	10.45
R-JC7	0.1173	240.28	01Jan3000, 05:15	11.83
R-JC8	0.1311	236.05	01Jan3000, 05:20	13.22
R-JC9	0.0065	14.85	01Jan3000, 05:10	0.66
R-P167	0.0107	23.35	01Jan3000, 05:10	1.08
R-P169	0.0021	4.83	01Jan3000, 05:10	0.21
R-P170	0.0117	25.57	01Jan3000, 05:10	1.18

Project: Pod1_S_curve Simulation Run: Pod1-10yr

Start of Run: 01Jan3000, 01:00 Basin Model: POD 1
 End of Run: 02Jan3000, 01:55 Meteorologic Model: S-Pattern 1(1.53in)
 Execution Time: 15Mar2006, 11:17:04 Control Specifications: Control 1

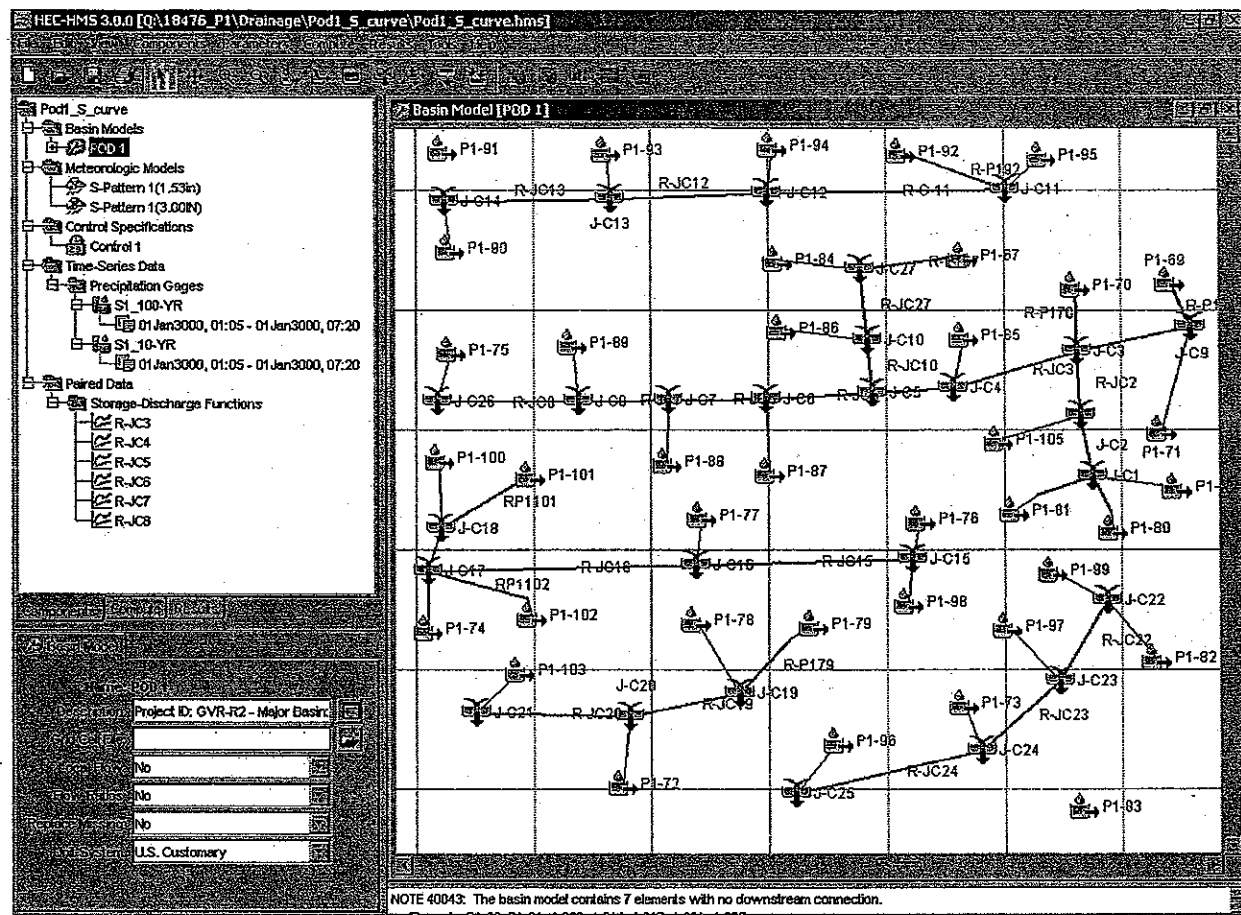
Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
J-C1	0.0268	20.66	01Jan3000, 05:15	0.94
J-C10	0.0365	27.56	01Jan3000, 05:15	1.27
J-C11	0.0087	7.45	01Jan3000, 05:10	0.30
J-C12	0.0131	10.89	01Jan3000, 05:10	0.46
J-C13	0.0172	14.15	01Jan3000, 05:10	0.60
J-C14	0.0210	17.15	01Jan3000, 05:10	0.74
J-C15	0.0213	17.58	01Jan3000, 05:10	0.74
J-C16	0.0300	23.39	01Jan3000, 05:10	1.04
J-C17	0.0548	42.48	01Jan3000, 05:10	1.91
J-C18	0.0112	9.11	01Jan3000, 05:10	0.39
J-C19	0.0187	15.28	01Jan3000, 05:10	0.65
J-C2	0.0341	25.08	01Jan3000, 05:15	1.19
J-C20	0.0231	17.44	01Jan3000, 05:15	0.80
J-C21	0.0263	19.28	01Jan3000, 05:15	0.91
J-C22	0.0104	8.72	01Jan3000, 05:10	0.36
J-C23	0.0154	11.68	01Jan3000, 05:15	0.54
J-C24	0.0184	12.18	01Jan3000, 05:20	0.64
J-C25	0.0363	23.28	01Jan3000, 05:15	1.26
J-C26	0.1378	90.05	01Jan3000, 05:20	4.63
J-C27	0.0222	17.81	01Jan3000, 05:10	0.77
J-C3	0.0523	37.66	01Jan3000, 05:15	1.83
J-C4	0.0589	42.59	01Jan3000, 05:10	2.06
J-C5	0.0954	69.83	01Jan3000, 05:15	3.33
J-C6	0.1036	76.88	01Jan3000, 05:15	3.62
J-C7	0.1173	86.58	01Jan3000, 05:15	4.10

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
J-C8	0.1311	96.50	01Jan3000, 05:15	4.58
J-C9	0.0065	5.55	01Jan3000, 05:10	0.23
P1-100	0.0046	3.95	01Jan3000, 05:10	0.16
P1-101	0.0066	5.50	01Jan3000, 05:10	0.23
P1-102	0.0031	2.68	01Jan3000, 05:10	0.11
P1-103	0.0032	2.76	01Jan3000, 05:10	0.11
P1-105	0.0073	6.12	01Jan3000, 05:10	0.25
P1-67	0.0107	8.95	01Jan3000, 05:10	0.37
P1-68	0.0085	6.76	01Jan3000, 05:10	0.30
P1-69	0.0021	1.81	01Jan3000, 05:10	0.07
P1-70	0.0117	9.35	01Jan3000, 05:10	0.41
P1-71	0.0044	3.80	01Jan3000, 05:10	0.15
P1-72	0.0044	3.70	01Jan3000, 05:10	0.15
P1-73	0.0030	2.58	01Jan3000, 05:10	0.10
P1-74	0.0105	8.65	01Jan3000, 05:10	0.37
P1-75	0.0067	1.04	01Jan3000, 05:15	0.06
P1-76	0.0089	7.40	01Jan3000, 05:10	0.31
P1-77	0.0087	7.46	01Jan3000, 05:10	0.30
P1-78	0.0087	7.23	01Jan3000, 05:10	0.30
P1-79	0.0100	8.29	01Jan3000, 05:10	0.35
P1-80	0.0165	13.42	01Jan3000, 05:10	0.57
P1-81	0.0018	1.55	01Jan3000, 05:10	0.06
P1-82	0.0080	6.65	01Jan3000, 05:10	0.28
P1-83	0.0174	14.09	01Jan3000, 05:10	0.61
P1-84	0.0115	9.67	01Jan3000, 05:10	0.40
P1-85	0.0066	5.61	01Jan3000, 05:10	0.23
P1-86	0.0143	11.05	01Jan3000, 05:10	0.50
P1-87	0.0082	6.52	01Jan3000, 05:10	0.29
P1-88	0.0137	11.15	01Jan3000, 05:10	0.48
P1-89	0.0138	9.61	01Jan3000, 05:15	0.48
P1-90	0.0038	3.28	01Jan3000, 05:10	0.13
P1-91	0.0017	1.48	01Jan3000, 05:05	0.06

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
P1-92	0.0044	3.80	01Jan3000, 05:10	0.15
P1-93	0.0041	3.54	01Jan3000, 05:10	0.14
P1-94	0.0044	3.62	01Jan3000, 05:10	0.15
P1-95	0.0043	3.71	01Jan3000, 05:10	0.15
P1-96	0.0179	13.84	01Jan3000, 05:10	0.62
P1-97	0.0050	4.09	01Jan3000, 05:10	0.17
P1-98	0.0124	10.19	01Jan3000, 05:10	0.43
P1-99	0.0024	2.07	01Jan3000, 05:10	0.08
R-C-11	0.0087	7.27	01Jan3000, 05:10	0.30
R-JC1	0.0268	20.24	01Jan3000, 05:15	0.94
R-JC10	0.0365	27.50	01Jan3000, 05:15	1.27
R-JC12	0.0131	10.61	01Jan3000, 05:10	0.46
R-JC13	0.0172	13.87	01Jan3000, 05:10	0.60
R-JC15	0.0213	16.46	01Jan3000, 05:15	0.74
R-JC16	0.0300	22.28	01Jan3000, 05:15	1.05
R-JC19	0.0187	14.53	01Jan3000, 05:15	0.65
R-JC2	0.0341	25.01	01Jan3000, 05:15	1.19
R-JC20	0.0231	17.35	01Jan3000, 05:15	0.80
R-JC22	0.0104	8.26	01Jan3000, 05:15	0.36
R-JC23	0.0154	10.95	01Jan3000, 05:20	0.54
R-JC24	0.0184	12.12	01Jan3000, 05:20	0.64
R-JC27	0.0222	17.52	01Jan3000, 05:15	0.78
R-JC3	0.0523	38.03	01Jan3000, 05:15	1.83
R-JC4	0.0589	42.56	01Jan3000, 05:10	2.06
R-JC5	0.0954	71.17	01Jan3000, 05:15	3.33
R-JC6	0.1036	77.18	01Jan3000, 05:15	3.62
R-JC7	0.1173	86.89	01Jan3000, 05:15	4.10
R-JC8	0.1311	89.04	01Jan3000, 05:20	4.58
R-JC9	0.0065	5.46	01Jan3000, 05:10	0.23
R-P167	0.0107	8.46	01Jan3000, 05:15	0.37
R-P169	0.0021	1.75	01Jan3000, 05:10	0.07
R-P170	0.0117	9.30	01Jan3000, 05:10	0.41

GOLDEN VALLEY RANCH



Precipitation

Time	100-yr, 6-hr	10-yr, 6-hr
01Jan3000, 01:05	0	0
01Jan3000, 01:20	0.024	0.012
01Jan3000, 01:35	0.048	0.024
01Jan3000, 01:50	0.075	0.038
01Jan3000, 02:05	0.099	0.05
01Jan3000, 02:20	0.123	0.063
01Jan3000, 02:35	0.15	0.077
01Jan3000, 02:50	0.174	0.089
01Jan3000, 03:05	0.198	0.101
01Jan3000, 03:20	0.222	0.113
01Jan3000, 03:35	0.261	0.133
01Jan3000, 03:50	0.297	0.151
01Jan3000, 04:05	0.354	0.181
01Jan3000, 04:20	0.414	0.211
01Jan3000, 04:35	0.648	0.33
01Jan3000, 04:50	1.131	0.577
01Jan3000, 05:05	2.502	1.276
01Jan3000, 05:20	2.733	1.394
01Jan3000, 05:35	2.793	1.424
01Jan3000, 05:50	2.85	1.454
01Jan3000, 06:05	2.886	1.472
01Jan3000, 06:20	2.916	1.487
01Jan3000, 06:35	2.949	1.504
01Jan3000, 06:50	2.973	1.516
01Jan3000, 07:05	3	1.53

18448 - POD 1
HEC-HMS DATA RESULTS
C:\temp\20051603\18476P1StdForm4.xls

Shed Parameters - Pod 1

DEVELOPED CONDITIONS					
Drainage Shed	Area (ac)	Elev dn	Elev up	Length (ft)	Slope
P1- 67	6.82056208	2528.9	2522.9	887	0.6764%
P1- 68	5.43982051	2525.4	2516.7	1232	0.7062%
P1- 69	1.33282528	2525.3	2520.4	468	1.0470%
P1- 70	7.47393562	2525.4	2513.3	1240	0.9758%
P1- 71	2.78410071	2520.9	2517.4	318	1.1006%
P1- 72	2.82990899	2503.1	2497.6	817	0.6732%
P1- 73	1.94640098	2497.6	2492.4	569	0.9139%
P1- 74	6.72332983	2498.9	2488.7	1038	0.9827%
P1- 75	4.28184465	2517.4	2489.2	2240	1.2589%
P1- 76	5.70996719	2502.2	2497.3	925	0.5297%
P1- 77	5.54738366	2499.8	2493.2	602	1.0963%
P1- 78	5.57736688	2509.5	2503.9	941	0.5951%
P1- 79	6.42571205	2512.2	2503.9	990	0.8384%
P1- 80	10.5553556	2530.2	2520.8	1144	0.8217%
P1- 81	1.17969603	2518.9	2515	286	1.3636%
P1- 82	5.12524784	2518.9	2506.1	952	1.3445%
P1- 83	11.151259	2519.5	2510.4	1186	0.7673%
P1- 84	7.38699887	2524.7	2517.8	821	0.8404%
P1- 85	4.23359978	2518.1	2510.9	726	0.9917%
P1- 86	9.13315676	2524.1	2507.5	1474	1.1262%
P1- 87	5.24655358	2519.5	2505.4	1294	1.0896%
P1- 88	8.75517188	2512.4	2502.4	1147	0.8718%
P1- 89	8.803328	2518.7	2496.9	2026	1.0760%
P1- 90	2.41032003	2502.3	2499.3	290	1.0345%
P1- 91	1.08501801	2514.2	2510	231	1.8182%
P1- 92	2.80949645	2508.4	2505.3	436	0.7110%
P1- 93	2.64865483	2502.7	2500.5	400	0.5500%
P1- 94	2.81184315	2503.1	2497.3	1054	0.5503%
P1- 95	2.72709787	2506.4	2503.1	430	0.7674%
P1- 96	11.4479667	2508.2	2489.6	1459	1.2748%
P1- 97	3.21621621	2508.9	2497.6	1103	1.0245%
P1- 98	7.95973724	2551.1	2497.3	1054	5.1044%
P1- 99	1.53009463	2513.9	2507.9	304	1.9737%
P1- 100	2.96143496	2494.8	2488.7	550	1.1091%
P1- 101	4.20201393	2498.1	2490.7	919	0.8052%
P1- 102	2.01486774	2495.7	2491.1	356	1.2921%
P1- 103	2.06835346	2495.6	2490.6	412	1.2136%
P1- 105	4.66530826	2519.1	2513	863	0.7068%

Routing

Kinematic Routing

Reach	Length (ft)	slope	Manning "n"	Sub reaches	Shape	Width	Side Slope (xH:V)
R-C-11	250	0.007	0.016	5	Trapezoid	60	0.5
R-JC1	530	0.01	0.016	5	Trapezoid	20	0.5
R-JC10	50	0.01	0.016	5	Trapezoid	20	0.5
R-JC12	170	0.007	0.016	5	Trapezoid	60	0.5
R-JC13	150	0.007	0.016	5	Trapezoid	60	0.5
R-JC15	820	0.007	0.016	5	Trapezoid	60	0.5
R-JC16	330	0.007	0.016	5	Trapezoid	60	0.5
R-JC19	830	0.007	0.016	5	Trapezoid	60	0.5
R-JC2	50	0.01	0.016	5	Trapezoid	20	0.5
R-JC20	680	0.0109	0.016	5	Trapezoid	60	0.5
R-JC22	1000	0.01	0.025	5	Trapezoid	100	0
R-JC23	550	0.008	0.016	5	Trapezoid	60	0.5
R-JC24	390	0.009	0.016	5	Trapezoid	60	0.5
R-JC27	1130	0.007	0.016	5	Trapezoid	60	0.5
R-JC9	200	0.01	0.023	5	Trapezoid	20	0.5
RP1101	400	0.007	0.016	5	Trapezoid	60	0.5
RP1102	380	0.007	0.016	5	Trapezoid	60	0.5
R-P167	650	0.005	0.016	5	Trapezoid	60	0.5
R-P169	330	0.01	0.025	5	Trapezoid	50	0.5
R-P170	50	0.01	0.016	5	Trapezoid	20	0.5
R-P179	200	0.007	0.016	5	Trapezoid	60	0.5
R-P180	1140	0.007	0.016	5	Trapezoid	60	0.5
R-P181	730	0.007	0.016	5	Trapezoid	60	0.5
R-P192	250	0.007	0.016	5	Trapezoid	60	0.5

Modified Puls Routing

Reach	Paired Data Table*
R-JC3	R-JC3
R-JC4	R-JC4
R-JC5	R-JC5
R-JC6	R-JC6
R-JC7	R-JC7
R-JC8	R-JC8

* See OpenSpace_upper-Mod Puls worksheet for data

OpenSpace_upper-Mod Puls

F-JC8		R-J7		R-J6	R-J5	R-J4	R-J3
Flow	sta450-0	Flow	sta250-0	sta600-250	sta900-600	sta1200-900	1350-1200
(cfs)	Storage (ac-ft)	(cfs)	Storage (ac-ft)	Storage (ac-ft)	Storage (ac-ft)	Storage (ac-ft)	Storage (ac-ft)
25	0.0851	25	0.0360	0.0547	0.0509	0.0008	0.0259
50	0.1633	50	0.0603	0.0897	0.0867	0.0014	0.0437
75	0.2662	75	0.0817	0.1219	0.1177	0.0019	0.0592
100	0.4082	100	0.1013	0.1520	0.1422	0.0025	0.0733
125	0.5713	125	0.1199	0.1804	0.1721	0.0030	0.0861
150	0.7372	150	0.1378	0.2073	0.1958	0.0034	0.0978
200	1.1608	175	0.1546	0.2336	0.2182	0.0039	0.1088
250	1.6430	200	0.1712	0.2704	0.2402	0.0043	0.1195
300	2.2029	250	0.2020	0.3228	0.2825	0.0051	0.1392



POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14



Arizona 35.14 N 114.18 W 2703 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 3

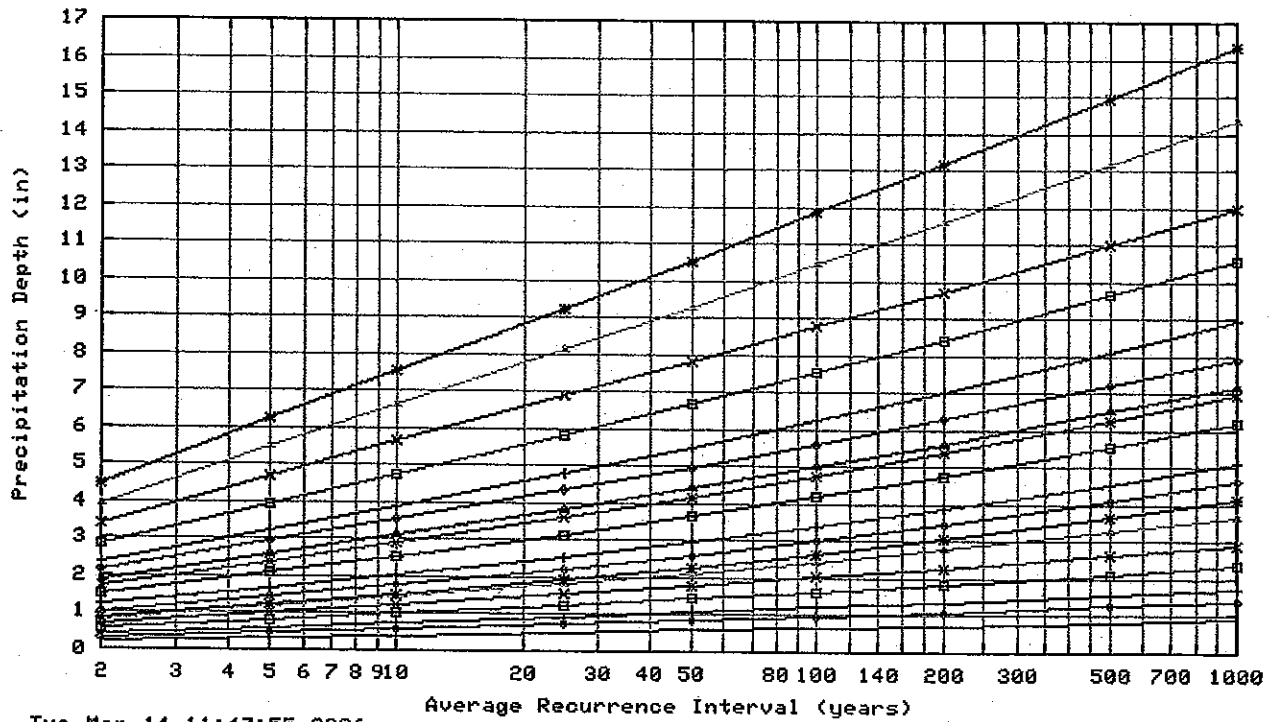
G.M. Bonnin, D. Todd, B. Lin, T. Parzybok, M. Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2003

Extracted: Tue Mar 14 2006

Confidence Limits		Seasonality		Location Maps		Other Info		GIS data		Maps		Help						
Precipitation Frequency Estimates (inches)																		
ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
2	0.23	0.35	0.43	0.58	0.72	0.82	0.89	1.04	1.22	1.51	1.75	1.91	2.18	2.36	2.87	3.40	3.95	4.46
5	0.33	0.50	0.62	0.83	1.03	1.17	1.25	1.44	1.68	2.08	2.40	2.60	2.96	3.23	3.96	4.69	5.51	6.24
10	0.40	0.61	0.75	1.01	1.25	1.44	1.53	1.76	2.05	2.53	2.90	3.13	3.55	3.90	4.77	5.64	6.64	7.53
25	0.49	0.75	0.93	1.26	1.55	1.82	1.95	2.22	2.56	3.15	3.61	3.85	4.36	4.81	5.85	6.89	8.14	9.25
50	0.57	0.86	1.07	1.44	1.78	2.12	2.29	2.59	2.97	3.66	4.17	4.42	4.98	5.53	6.70	7.83	9.29	10.54
100	0.65	0.98	1.22	1.64	2.03	2.44	2.67	3.00	3.42	4.19	4.76	5.01	5.62	6.26	7.56	8.78	10.45	11.86
200	0.73	1.10	1.37	1.84	2.28	2.79	3.07	3.44	3.88	4.75	5.39	5.64	6.29	7.03	8.44	9.73	11.62	13.19
500	0.84	1.27	1.58	2.12	2.63	3.27	3.67	4.08	4.55	5.55	6.26	6.50	7.21	8.12	9.64	10.99	13.18	14.96
1000	0.93	1.41	1.75	2.36	2.92	3.68	4.17	4.62	5.10	6.20	6.97	7.19	7.95	8.98	10.56	11.95	14.37	16.33

Text version of table

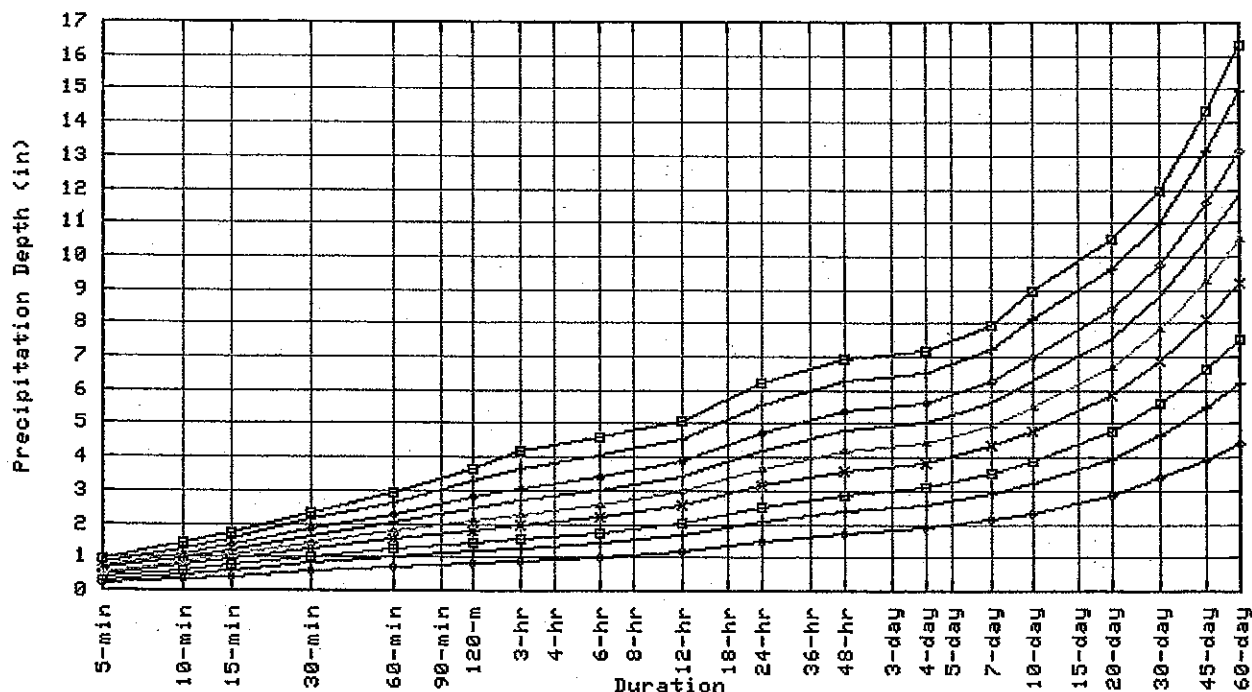
* These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval. Please refer to the documentation for more information. NOTE: Formatting forces estimates near zero to appear as zero.

Partial duration based Point Precipitation Frequency Estimates Version: 3
35.14 N 114.18 W 2703 ft

Tue Mar 14 11:47:55 2006

Duration			
5-min —	120-min —	48-hr —	30-day —
10-min —	3-hr —	4-day —	45-day —
15-min —	6-hr —	7-day —	60-day —
30-min —	12-hr —	10-day —	
60-min —	24-hr —	20-day —	

Partial duration based Point Precipitation Frequency Estimates Version: 3
35.14 N 114.18 W 2703 ft



Tue Mar 14 11:47:55 2006

Average Recurrence Interval (years)	
2	◆
5	+
10	■
25	×
50	▲
100	—
200	◆
500	+
1000	■

Confidence Limits -

* Upper bound of the 90% confidence interval Precipitation Frequency Estimates (inches)																		
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
2	0.27	0.42	0.52	0.70	0.86	1.00	1.06	1.23	1.40	1.72	1.97	2.15	2.46	2.65	3.22	3.83	4.49	5.12
5	0.39	0.60	0.74	0.99	1.23	1.42	1.48	1.69	1.93	2.36	2.70	2.92	3.33	3.62	4.43	5.29	6.26	7.16
10	0.48	0.73	0.90	1.21	1.50	1.75	1.83	2.07	2.35	2.86	3.27	3.52	4.00	4.37	5.34	6.35	7.56	8.65
25	0.59	0.90	1.11	1.50	1.85	2.20	2.31	2.60	2.94	3.57	4.07	4.33	4.90	5.40	6.57	7.75	9.28	10.64
50	0.68	1.03	1.28	1.72	2.13	2.58	2.72	3.05	3.43	4.15	4.72	4.98	5.61	6.21	7.53	8.84	10.61	12.13
100	0.77	1.18	1.46	1.96	2.43	2.98	3.18	3.57	3.98	4.79	5.41	5.68	6.36	7.08	8.54	9.96	11.97	13.71
200	0.87	1.33	1.65	2.22	2.75	3.42	3.73	4.13	4.58	5.46	6.15	6.43	7.17	8.01	9.57	11.09	13.36	15.33
500	1.02	1.56	1.93	2.60	3.22	4.09	4.53	4.99	5.52	6.46	7.22	7.49	8.30	9.33	10.99	12.61	15.24	17.51
1000	1.15	1.75	2.17	2.93	3.62	4.67	5.22	5.73	6.32	7.30	8.10	8.35	9.21	10.40	12.13	13.82	16.75	19.23

* The upper bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are greater than.

** These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval.

Please refer to the [documentation](#) for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

* Lower bound of the 90% confidence interval Precipitation Frequency Estimates (inches)

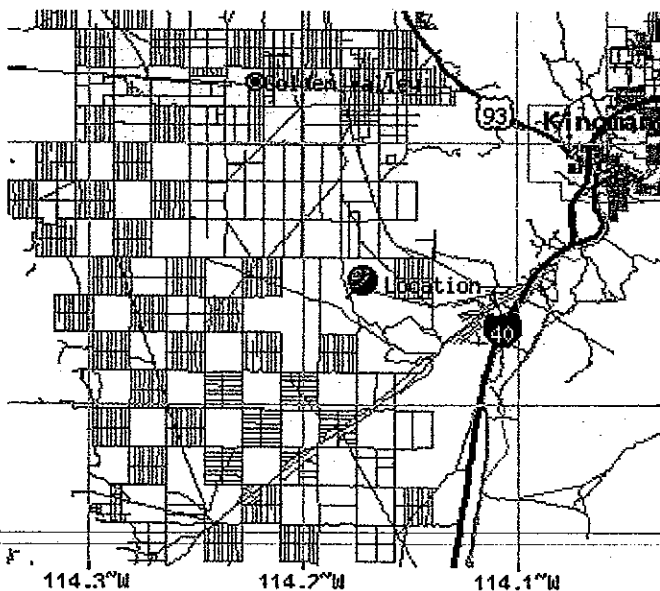
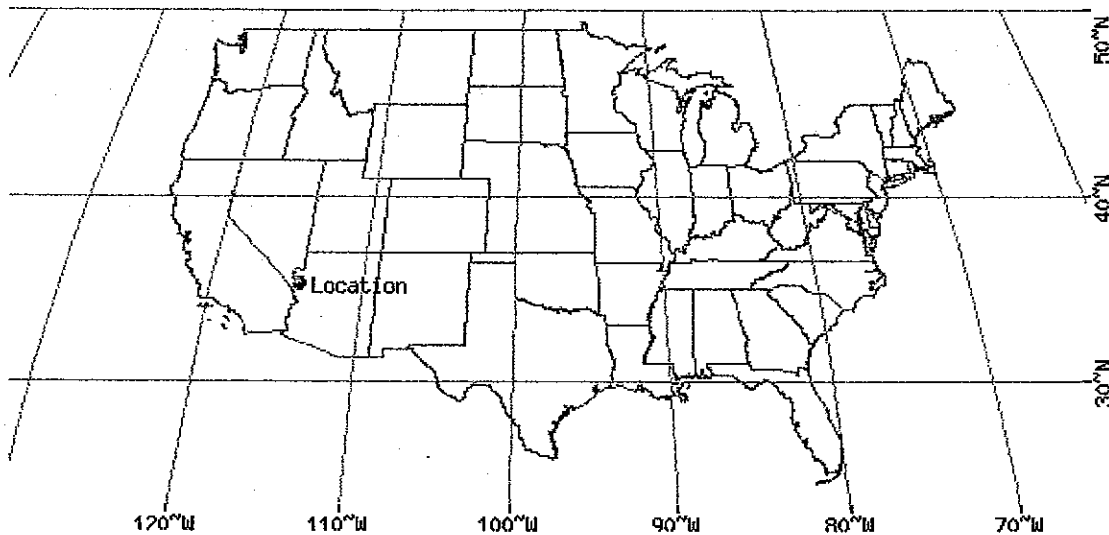
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
2	0.19	0.29	0.36	0.49	0.60	0.69	0.76	0.91	1.06	1.34	1.55	1.71	1.95	2.10	2.56	3.01	3.45	3.87
5	0.28	0.42	0.52	0.70	0.87	0.98	1.06	1.25	1.45	1.84	2.12	2.31	2.64	2.87	3.52	4.15	4.80	5.40
10	0.33	0.51	0.63	0.85	1.05	1.19	1.29	1.51	1.77	2.23	2.56	2.79	3.16	3.46	4.22	4.98	5.78	6.50
25	0.41	0.62	0.78	1.04	1.29	1.47	1.60	1.86	2.16	2.74	3.16	3.40	3.85	4.25	5.14	6.07	7.05	7.96
50	0.46	0.70	0.87	1.18	1.46	1.70	1.86	2.13	2.46	3.14	3.62	3.88	4.37	4.85	5.86	6.85	7.99	9.02
100	0.52	0.79	0.98	1.32	1.63	1.92	2.12	2.41	2.77	3.55	4.10	4.37	4.91	5.46	6.58	7.64	8.92	10.07
200	0.57	0.87	1.08	1.46	1.80	2.14	2.37	2.70	3.08	3.96	4.58	4.86	5.43	6.07	7.29	8.41	9.86	11.13
500	0.65	0.98	1.22	1.64	2.03	2.46	2.74	3.08	3.48	4.52	5.25	5.52	6.14	6.91	8.23	9.40	11.06	12.46
1000	0.70	1.06	1.32	1.78	2.20	2.68	3.03	3.38	3.80	4.94	5.76	6.03	6.69	7.57	8.92	10.12	11.96	13.46

* The lower bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are less than.

** These precipitation frequency estimates are based on a partial duration maxima series. ARI is the Average Recurrence Interval.

Please refer to the documentation for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

Maps -



These maps were produced using a direct map request from the
U.S. Census Bureau Mapping and Cartographic Resources
Tiger Map Server.

Please read disclaimer for more information.

LEGEND

- State
- County
- Indian Resv
- Lake/Pond/Ocean
- Street
- Expressway
- Highway
- Connector
- Stream
- Military Area
- National Park
- Other Park
- City
- County

Scale 1:228583

*average—true scale depends on monitor resolution

Other Maps/Photographs -

View USGS digital orthophoto quadrangle (DOQ) covering this location from TerraServer; USGS Aerial Photograph may also be available from this site. A DOQ is a computer-generated image of an aerial photograph in which image displacement caused by terrain relief and camera tilts has been removed. It combines the image characteristics of a photograph with the geometric qualities of a map. Visit the National Digital Orthophoto Program (NDOP) for more information.

Watershed/Stream Flow Information -

Find the Watershed for this location using the U.S. Environmental Protection Agency's site.

Climate Data Sources -

Precipitation frequency results are based on data from a variety of sources, but largely NCDC. The following links provide general information about observing sites in the area, regardless of if their data was used in this study. For detailed information about the stations used in this study, please refer to our documentation.

Using the National Climatic Data Center's (NCDC) station search engine, locate other climate stations within:

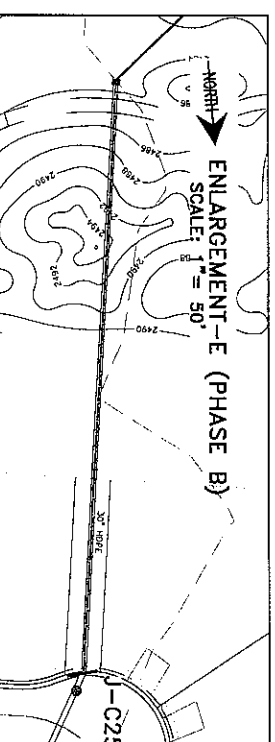
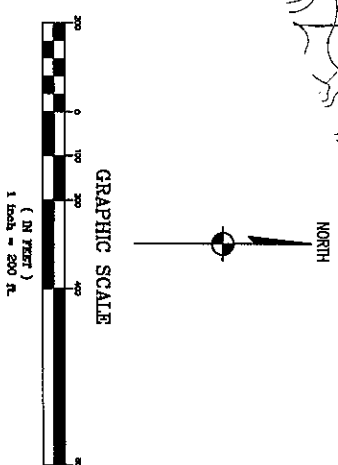
± 30 minutes ...OR... ± 1 degree of this location (35.14/-114.18). Digital ASCII data can be obtained directly from NCDC.

Find Natural Resources Conservation Service (NRCS) SNOTEL (SNOWpack TELelemetry) stations by visiting the Western Regional Climate Center's state-specific SNOTEL station maps.

Hydrometeorological Design Studies Center
DOC/NOAA/National Weather Service
1325 East-West Highway
Silver Spring, MD 20910

(301) 713-1669
Questions?: HDSC.Questions@noaa.gov

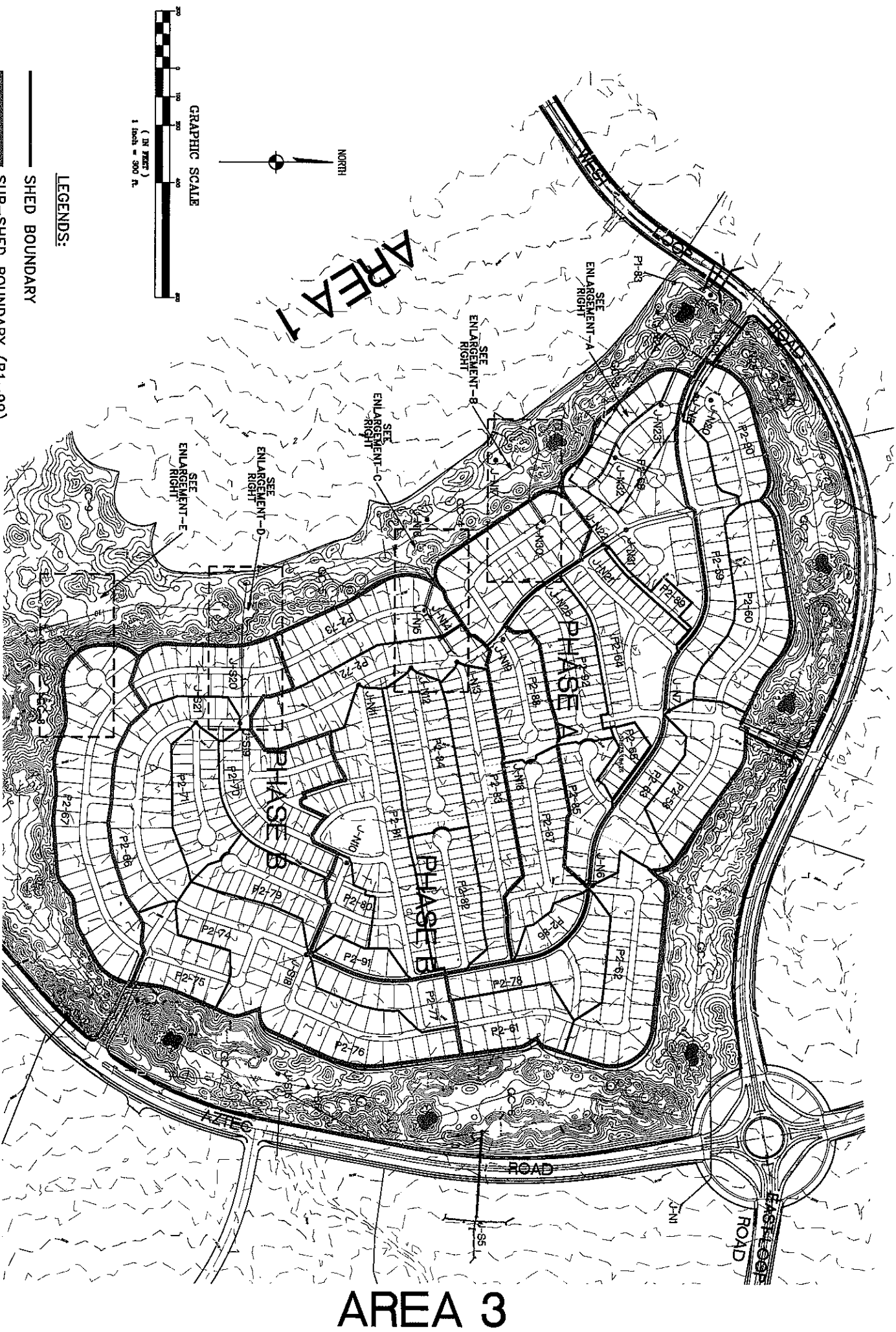
Disclaimer



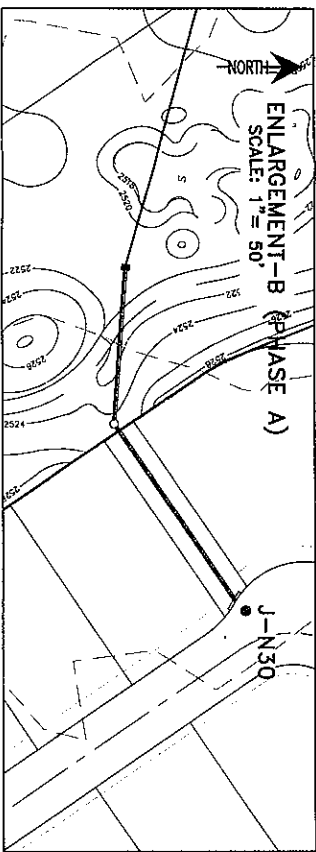
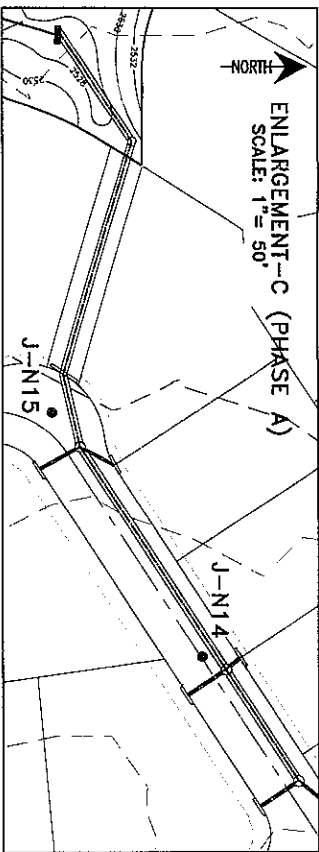
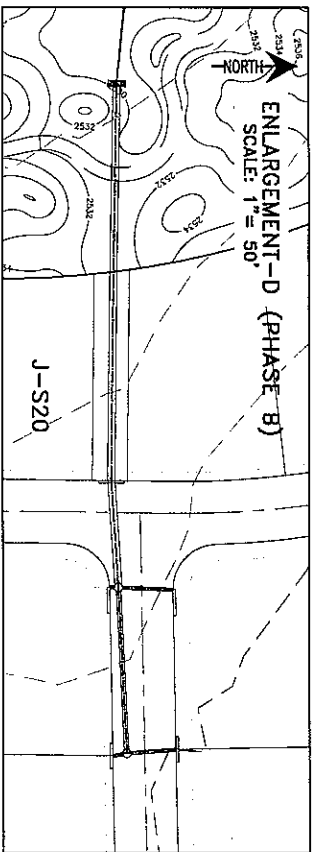
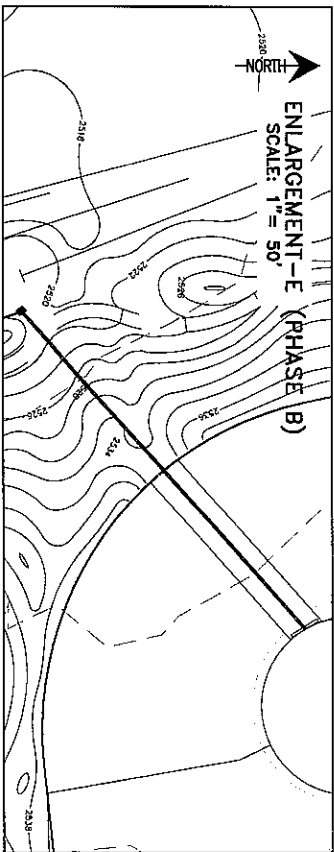
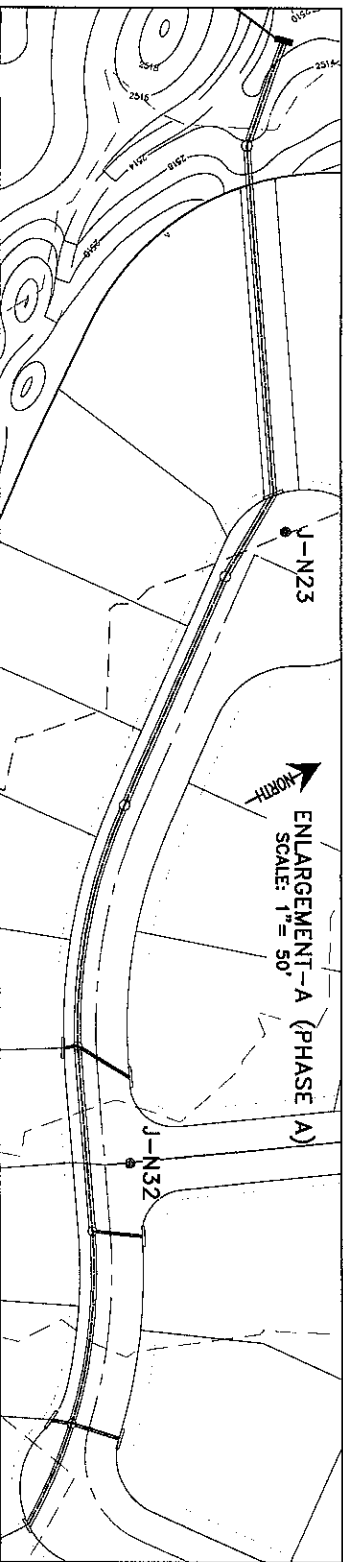
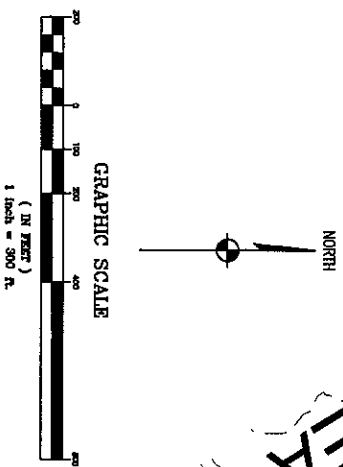
5820 S. EASTERN AVENUE, SUITE 200
LAS VEGAS, NEVADA 89119 (702) 369-9396

MOHAVE COUNTY

ST-RH037721



- LEGENDS:**
- SHED BOUNDARY
 - SUB-SHED BOUNDARY (P1-99)
 - JUNCTION POINT (J-C9)
 - PROPOSED CHANNEL
 - PROPOSED PIPE
 - STORM DRAIN PIPE
 - STORM DRAIN INLET



Stanley Consultants INC.
5820 S. EASTERN AVENUE, SUITE 200
LAS VEGAS, NEVADA 89119 (702) 369-9396

GOLDEN VALLEY RANCH
AREA 2 DRAINAGE SUB-SHEDS
TECHNICAL DRAINAGE STUDY EXHIBIT

MOHAVE COUNTY

ARIZONA

FIGURE 3

GOLDEN VALLEY RANCH

APPENDIX A

AREA 3 – RESULTS AND DATA

- **HEC-HMS 100-YR, 6-HR SIMULATION**
- **HEC-HMS 10-YR, 6-HR SIMULATION**
- **NOAA ATLAS 14 PRECIPITATION**
- **STANDARD FORM 4**

Project: Pod3_S-curve Simulation Run: Pod3 100-yr

Start of Run: 01Jan3000, 01:00 Basin Model: Pod 3
 End of Run: 02Jan3000, 01:55 Meteorologic Model: S-Pattern 1(3.00in)
 Execution Time: 15Mar2006, 10:34:21 Control Specifications: Control 1

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
J-S5	0.1092	187.25	01Jan3000, 05:15	10.27
P3-43	0.0393	60.15	01Jan3000, 05:10	2.88
P3-44	0.0281	37.59	01Jan3000, 05:15	2.06
P3-45	0.0025	4.59	01Jan3000, 05:05	0.18
P3-50	0.0303	59.14	01Jan3000, 05:15	3.20
P3-60	0.0396	70.55	01Jan3000, 05:15	4.18

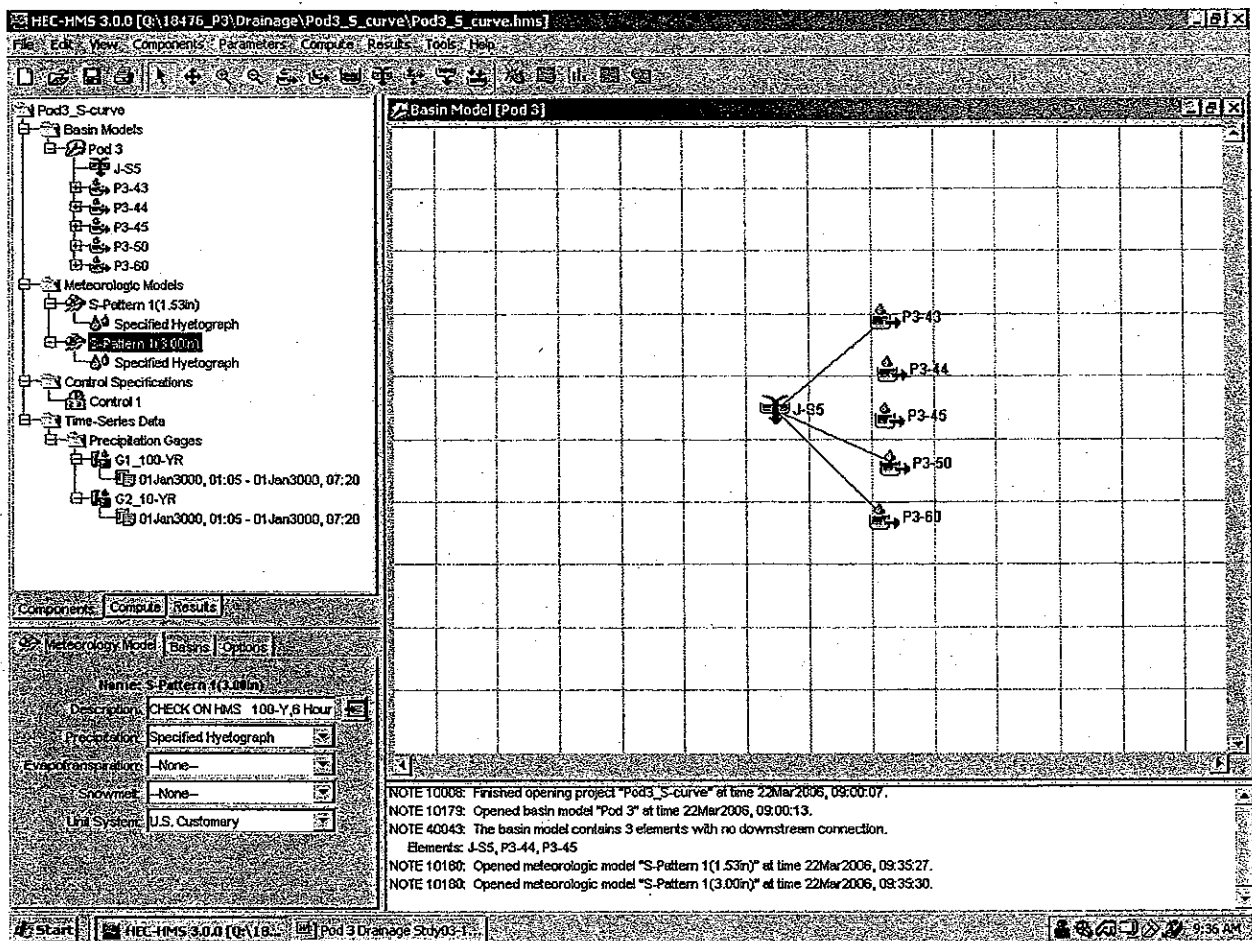
Project: Pod3_S-curve Simulation Run: Pod3 10yr

Start of Run: 01Jan3000, 01:00 Basin Model: Pod 3
 End of Run: 02Jan3000, 01:55 Meteorologic Model: S-Pattern 1(1.53in)
 Execution Time: 15Mar2006, 10:34:47 Control Specifications: Control 1

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
J-S5	0.1092	64.13	01Jan3000, 05:15	3.40
P3-43	0.0393	15.90	01Jan3000, 05:15	0.76
P3-44	0.0281	9.68	01Jan3000, 05:15	0.54
P3-45	0.0025	1.28	01Jan3000, 05:10	0.05
P3-50	0.0303	22.34	01Jan3000, 05:15	1.14
P3-60	0.0396	25.89	01Jan3000, 05:15	1.49



GOLDEN VALLEY RANCH



Precipitation

Time	100-yr, 6-hr	10-yr, 6-hr
01Jan3000, 01:05	0	0
01Jan3000, 01:20	0.024	0.012
01Jan3000, 01:35	0.048	0.024
01Jan3000, 01:50	0.075	0.038
01Jan3000, 02:05	0.099	0.05
01Jan3000, 02:20	0.123	0.063
01Jan3000, 02:35	0.15	0.077
01Jan3000, 02:50	0.174	0.089
01Jan3000, 03:05	0.198	0.101
01Jan3000, 03:20	0.222	0.113
01Jan3000, 03:35	0.261	0.133
01Jan3000, 03:50	0.297	0.151
01Jan3000, 04:05	0.354	0.181
01Jan3000, 04:20	0.414	0.211
01Jan3000, 04:35	0.648	0.33
01Jan3000, 04:50	1.131	0.577
01Jan3000, 05:05	2.502	1.276
01Jan3000, 05:20	2.733	1.394
01Jan3000, 05:35	2.793	1.424
01Jan3000, 05:50	2.85	1.454
01Jan3000, 06:05	2.886	1.472
01Jan3000, 06:20	2.916	1.487
01Jan3000, 06:35	2.949	1.504
01Jan3000, 06:50	2.973	1.516
01Jan3000, 07:05	3	1.53

Stan...Form4

Project:		Job No.: 0		Date: 0		Calculated by: 0																			
6-Hour Design Storm Distribution		 Stanley Consultants INC 5820 S. Eastern Ave. Suite 200 Las Vegas, Nevada 89119 702.389.9396																							
Modified STANDARD FORM 4 from the Clark County Regional Flood Control District's Hydrologic Criteria and Drainage Design Manual		 Stanley Consultants INC 5820 S. Eastern Ave. Suite 200 Las Vegas, Nevada 89119 702.389.9396																							
Drainage Basin Name	Drainage Area (Acres)	Drainage Area (Sq. Mi.)	SCS Curve Numbers				Composite	Sub-Basin Data	Travel Time (T)				To Check (Urbanized Basins)		Final Tc (Min)	TLAG (Min)	HEC-INPUT	Remarks							
			A	B	C	D			Length (feet)	Slope (%)	Ti (Min)	Length (feet)	Slope (%)	V1 (FPS)					V2 (FPS)	Total Length (feet)	To = (Min)				
EXISTING CONDITIONS																									
P3-43	26.16	0.0393	59	73.5	82	88.5	82	P3-43	0.65	25.15	174	1.00	10.69	1740	0.94	1.90	2.97	11.22	19.14	20.6	12.4	82	0.0393		
P3-44	18.01	0.0261	59	73.5	82	88.5	82	P3-44	0.65	18.01	144	1.00	8.72	3112	1.08	2.10	3.16	17.85	3263	28.1	27.4	16.4	82	0.0261	
P3-45	1.83	0.0026	59	73.5	82	88.5	82	P3-45	0.65	1.83	100	1.00	8.10	402	1.12	2.14	3.24	3.84	562	13.3	11.8	7.2	82	0.0026	
P3-50	19.39	0.0303	78	85.5	88.5	91.5	88.5	P3-50	0.78	19.39	261	1.00	9.31	2439	1.05	2.07	3.14	14.28	2890	24.9	23.8	14.2	80	0.0303	
P3-50	26.38	0.0398	78	85.5	88.5	91.5	88.5	P3-50	0.78	26.38	274	1.00	9.53	3201	0.91	1.83	2.92	18.75	3475	29.3	29.3	17.6	80	0.0398	
K = 0.0132 Cn = 0.38 $Ti = 1.49 * (1.48 * L^{0.78} / (S^{0.48}))$ Generalized Manning's Equations Existing Conditions Developed Conditions V1 = 14.8 * (S/100)^0.5 V2 = 28.4 * (S/100)^0.5																									
URBAN AREAS 1.01 Open space - poor 1.02 Open space - fair 1.03 Open space/parking - good 1.04 Paved (includes right-of-way) 1.06 Paved: curbs and storm drains 1.08 Paved: open ditches (includes RW) 1.07 Gravel (includes RW) 1.08 Dirt (includes RW) 1.11 Commercial & Business 1.12 Industrial 1.13 Apartments/Condos 1.14 Townhouses/condos 5000 sq. ft. 1.15 7000 sq. ft. lots 1.16 8000 sq. ft. lots 1.17 10,000 sq. ft. lots 1.18 14,000 sq. ft. lots 1.19 20,000 sq. ft. lots 1.20 40,000 sq. ft. lots 1.21 80,000 sq. ft. lots																									

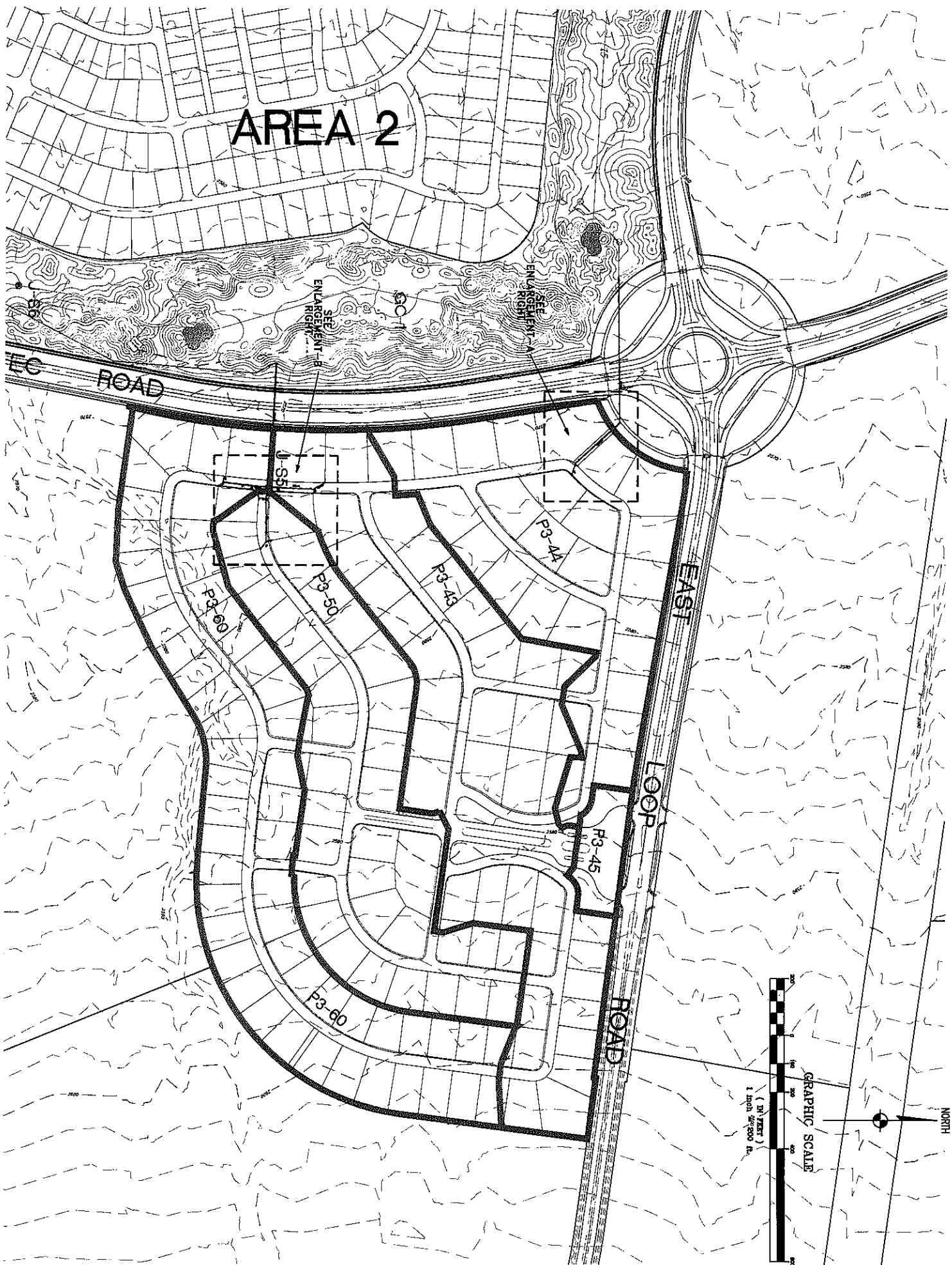
 18476-Pod 3
 HEC-HMS DATA RESULTS
 Q:\18476_P3\Drainage\Drainage Study\18476P3StdForm4.xls

ST-RH037728

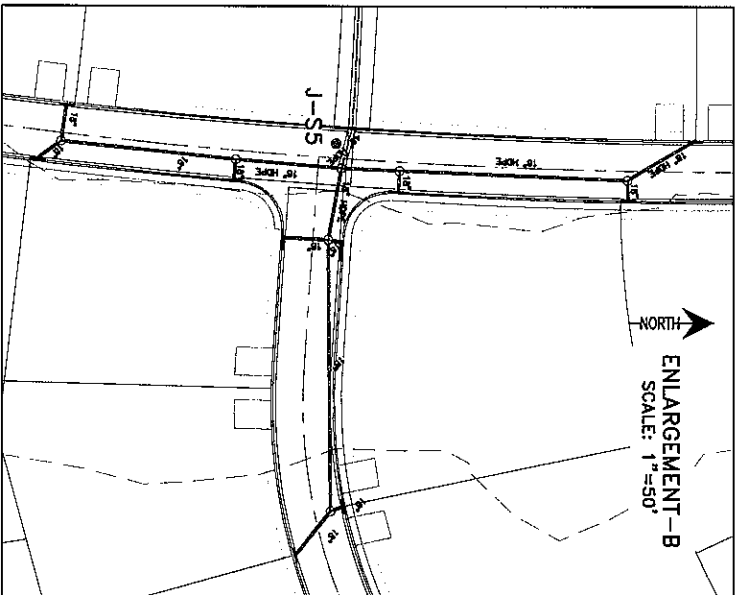
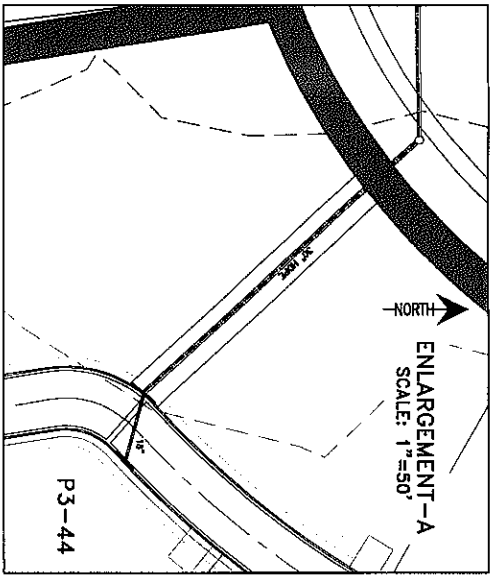
Q:\18476_P3\Draw\drainage\Figure 3 - POD 3 Drainage Scheme-RAM.dwg, 6/1/2006 1:38:05 PM, \\vg-ps1\hp5500-tr-ps



Stanley Consultants Inc.
5820 S. EASTERN AVENUE, SUITE 200
LAS VEGAS, NEVADA 89119 (702) 369-9396



- LEGENDS:
- SHED BOUNDARY
 - SUB-SHED BOUNDARY (P1-99)
 - JUNCTION POINT (J-C9)
 - PROPOSED CHANNEL
 - PROPOSED PIPE
 - STORM DRAIN PIPE
 - STORM DRAIN INLET



GOLDEN VALLEY RANCH
AREA 3 DRAINAGE SUB-SHEDS
TECHNICAL DRAINAGE STUDY EXHIBIT

MOHAVE COUNTY

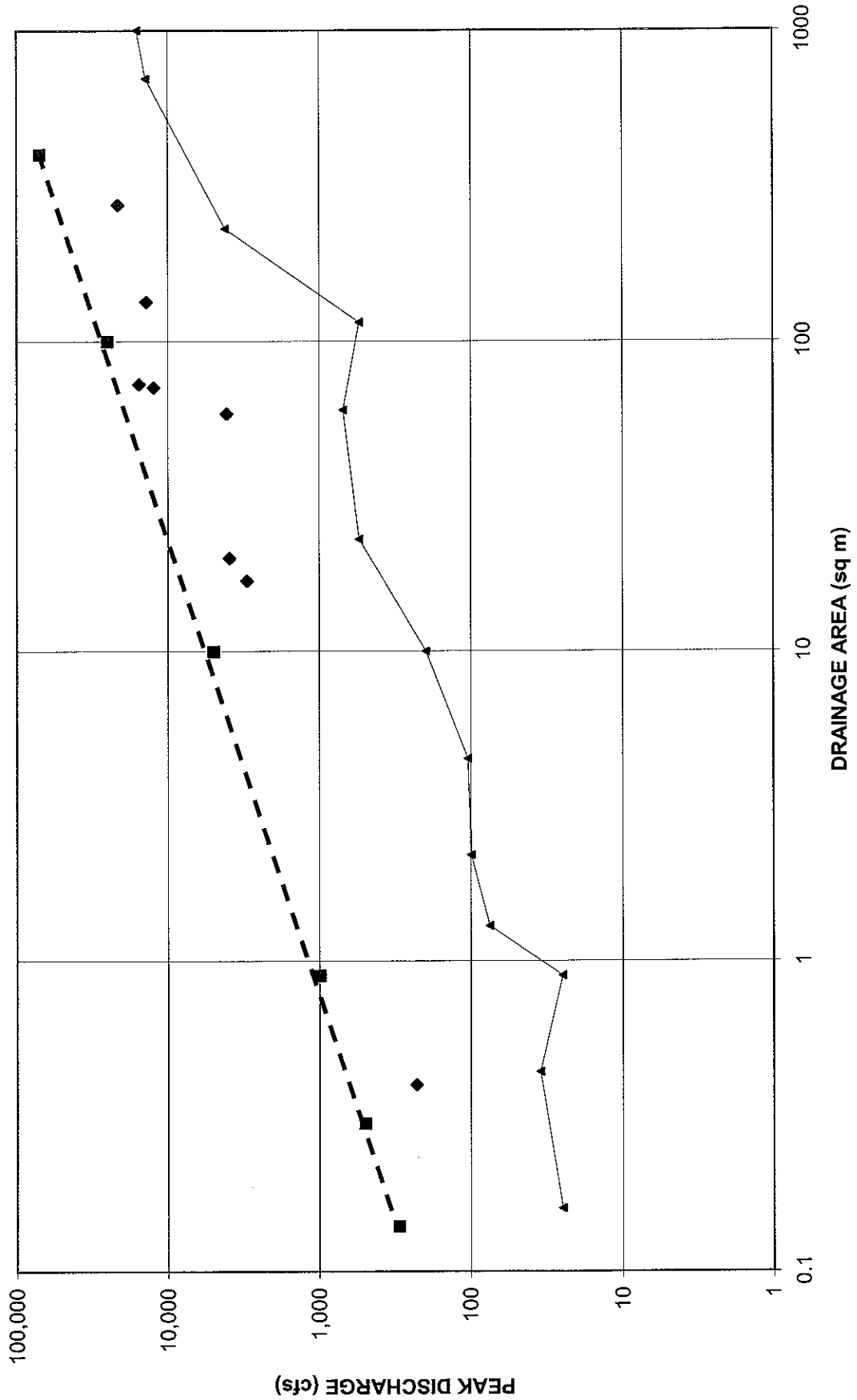
ARIZONA FIGURE 3

GOLDEN VALLEY RANCH

APPENDIX E

INDIRECT METHODS DISCHARGE VERIFICATION- FLOW RELATIONSHIP

Q100 DATA POINTS FOR GOLDEN VALLEY SHEDS VS RELATIONSHIP LINE FOR REGION 10



◆ GOLDEN VALLEY SHEDS ■ Figure 10-17 (R10) Relationship Line —▲ Lower Limits of Data Scatter

**Golden Valley Ranch
Technical Drainage Study**

GOLDEN VALLEY SHEDS			RELATIONSHIP LINE		LOWER LIMIT POINTS	
Basin	Area (sq mi)	Discharge	Area (sq mi)	Discharge	Area (sq mi)	Discharge
A	134	13,980	0.14	300	0.16	25
B	1.1		0.3	500	0.44	35
C	71	12,500	0.9	1000	0.9	25
D	16.9	3,020	10	5000	1.3	75
E	20	3941	100	25000	2.2	100
G	0.4	230	400	70000	4.5	105
H	58.4	4,120			10	200
M	72.8	15,560			23	550
N	134.5	11,950 ²			60	700
Q	275	21,490			115	550
					230	4200
					700	14000
					1000	16000

GOLDEN VALLEY RANCH

APPENDIX F

PLANS – NOT INCLUDED

(SEE GRADING PLANS THIS PROJECT)

